

July 1976 30p

**AIRFIX**

magazine for plastic modellers

**Inside:** Hanover air show plus F-100s at Lakenheath  
Shuttleworth Spitfire and Bugatti 35B modelling details

## British infantry 1800



Modelling the 25 pdr Sexton in 1:76 scale



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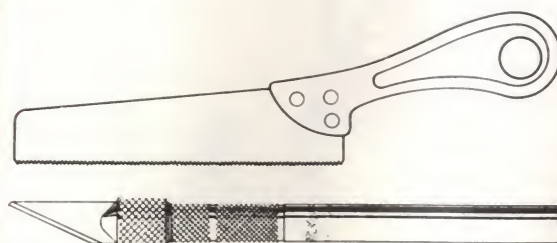
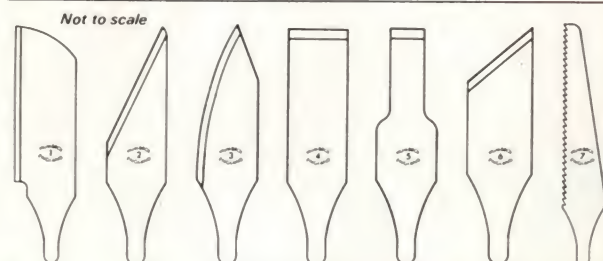
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*magazine for plastic modellers*

Editorial Director **Darryl Reach** Editor **Bruce Quarrie** Art Editor **Tim McPhee**  
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## On the cover

This superb painting by Bryan Fosten depicts men of the 6th Foot in 1800 (see also article on pages 621-3). On the left is a drill sergeant with, next to him, a private showing the waistcoat and stockings, and on the right privates of grenadier and battalion companies.

## Contents

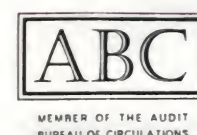
<b>Air, land and sea</b> Hanover air show and other news items of interest to modellers	611
<b>TSR2</b> Postscript to last month's article by <b>Tim Perry</b>	617
<b>Armoured locomotive</b> Boer War train from <b>Terry Wise</b>	618
<b>British army uniforms</b> Line infantry 1799-1800 by <b>Bryan Fosten</b>	621
<b>SUPER Sabres!</b> F-100s at Lakenheath described by <b>Peter Guiver</b> and <b>Michael Bowyer</b>	624
<b>Sexton</b> 25 pdr SPG modelled in 1:76 scale by <b>Joe Sauve</b>	628
<b>Shuttleworth Spitfire</b> Modifying the Airfix kit to represent Shuttleworth's machine by <b>Keith Palmer</b>	632
<b>Scratch-building figures</b> From wire and Plastic Padding described by <b>Ron Wood</b>	634
<b>Bugatti 35B</b> Super-detailing the Airfix kit by <b>Noel Smith</b>	639
<b>Squadron codes and colours</b> by <b>Michael J. F. Bowyer</b> and <b>John D. R. Rawlings</b>	641
<b>Army-air colours</b> Hotspur part 2 by <b>Michael Bowyer</b>	642
<b>New kits and models</b> Reviewed by modellers for modellers	645
<b>News for wargamers</b> New books and games	648
<b>Book reviews</b> New publications of interest to modellers	649
<b>Letters to the editor</b> Your chance to win a free Airfix kit	650

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Airfix Magazine is published for the proprietors, Airfix Products Limited, by PSL Publications Limited, on the fourth Friday of each month. Annual subscription rate £5.10 (USA \$12.00) from Surridge Dawson & Company (Productions) Limited. Second Class postage paid at New York Post Office, NY.





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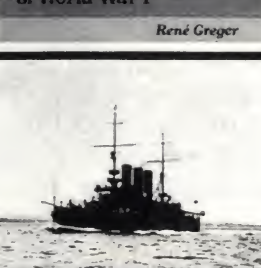
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DG46	Self-Propelled Mortar Sd.Kfz. 251 1/2-Track	8p
DG47	Engineer's Vehicle Sd.Kfz. 251/7	8p
DG48	75 mm L24 Sd.Kfz. 251/16	8p
DG49	Flame Thrower Sd.Kfz. 251/17	8p
DG50	AA 20 mm Sd.Kfz. 7 (88 Tractor)	8p
DG56	Sd.Kfz. 7 (Open top)	8p
DG57	Opel Blitz 3-ton Truck	8p
DG58	Daimler Benz 3000L Truck	8p
DG59	Opel Maultier 1/2-Track	8p
DG60	Daimler Benz Bowser	8p
DG61	Kubelwagen	8p
DG62	Steyr 1500 Field Car	8p
DG63	Kettenkrad	8p
DG64	SiG33/150 mm SPG 38(t)	8p
DG65	37 mm AA SPG	8p
DG66	Saurer Heavy Truck	8p
DG67	SWS 40 1/2-Track	8p
DG68	Mercedes Staff Car	8p
DG69	M/C Combination	8p
DG70	Opel Radio Truck	8p
DG71	Raupenschlepper Ost	8p
DG72	5.0 cm Pak 38 (Firing)	8p
DG80	7.5 cm Pak 40 (Firing)	8p
DG81	8.8 cm Flak (Firing)	8p
DG82	8.8 cm Flak (Limbered)	8p



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#### Hanover air show

THE FIRST OF this year's major international air shows, the Deutsche Luftfahrtschau '76, was staged at Hanover/Langenhagen Airport on May 1 to 9 last. Whilst this event can in no way be compared with the Farnborough or Paris extravaganzas, it did score a first in that the MRCA, now known as the Tornado, made its long-awaited public debut.

Two of these aircraft were on view, albeit only for the first four days, these being the second and third German-built machines, prototypes 04 and 07. 04, which was registered D-9592, was in the static park, in a similar red and white colour scheme to the first prototype, and this aircraft first flew in September 1975.

The other Tornado, prototype 07, coded 98+06, made its maiden flight in March of this year and was camouflaged in full Luftwaffe markings. This aircraft gave a sparkling flying display on May 3, then next day both Tornados took off and flew past together slowly with wings in the forward position, to return in a high-speed flypast with wings fully swept. Both machines then climbed away to the south to rejoin the test programme. Prototypes 04 and 07 are involved in proving the Tornado's avionics

systems, including the terrain following radar.

Of course, multi-national programmes such as the Tornado, the A-300 Airbus and the Alpha-jet were given much emphasis throughout the exhibition halls, and an Airbus of Germanair dominated the showground. Alpha-Jet 04 was on show, sporting an eye-catching colour scheme, and

this aircraft gave several excellent aerobatic displays. A similar performance was also given by the well-known Saab 105G demonstrator, SE-XBZ.

The German armed forces had a comprehensive range of aircraft, missiles and equipment on show, ranging from an Alouette II to an Atlantic. However the vast majority of aircraft on view were in the light touring, sporting, business and executive jet class. Of interest here was a Piper Cheyenne six to eight seat turboprop business twin, billed as the 100,000th machine built by Pipers in over 40 years.

The United States and France provided the majority of types in this general aviation category. Russia sent a Yak-40, and KA-26 and Mil-8 helicopters, whilst from Poland came a Wilga and a PZL-106 Kruk (Raven) agricultural aircraft, which contrasted with two Grumman Ag-Cat biplanes.



**Top of page** Tornado P 07 coded 98+06 camouflaged in brown, medium and very dark grey. Fin tip brown (top), white and orange dayglo. Wingtips orange dayglo. Bands behind black nose radome white (front) and orange dayglo. **Above right** The fourth prototype Tornado D-9592. Wing and tailplane tips red, as are ducts under fuselage and narrow bands and arrows around rear fuselage. Registration black (MBB). **Right** Tornado P 04 in the static park. Nose radome, fin tip, front base of fin black, all other areas red and white. Area below registration grey.





**Top left** Smart Alpha Jet 04 surrounded by various weapons and stores. Fuselage is medium blue with white top, flash and markings. Wings have red and white bands, fin flashes are blue (front), white and red, fin tip is white. **Second** Glossy new dark green Saab Supporter of the Royal Danish Air Force, serial (in black) T-406. Nose panel is semi-matt black. Beyond is A300B4 Airbus D-AMAY of Germanair. **Third** All-red Fokker Triplane. The other side of the fuselage bore the serial 'Fok.Dr.1 425/17'. Wing behind is of a Bf 108. **Bottom** Displayed by the entrance was this red and white Fw 44 'Stieglitz'.



Israel sent a camouflaged Arava and a Westwind business jet, and in addition to the 105 Saab displayed a glossy new Supporter in the colours of the Royal Danish Air Force. The Dornier Sky servant put on some impressive slow flying displays, and the MBB Bo 105 range of helicopters flew some positively hair-raising antics. Two VFW-614 airliners were on view, one in the colours of Air Alsace, the other being in Luftwaffe markings.

Several elderly aircraft were on show, with a smart 1932 Focke-Wulf Fw 44 Stieglitz by the main entrance. In one of the exhibition halls was an all-red Fokker Triplane of 1917 and a Junkers F-13 all-metal monoplane dating from 1919, together with a Messerschmitt Bf 108 Taifun.

Main interest, however, was in a recently restored Dornier Do 335A twin engined fighter, with pusher and tractor airscrews, which was on view in a rather cramped and gloomy corner of another hall. This machine first flew in 1944, and in 1945 was taken to the US Navy's Test Centre at Patuxent River for evaluation. It then went on show at the Smithsonian Institute at Washington for 27 years. In October 1974 the aircraft was flown inside a Lufthansa Boeing 747F from New York to Frankfurt, and then a Luftwaffe Transall moved it to the Dornier plant at Oberpfaffenhofen near Munich for complete renovation. Eventually this Do 335A will go on display at the Deutsche Museum in Munich (from whence came the Fokker Triplane and the F-13).

The Do 335A has been finished in a camouflage of green and dark brown on the upper surfaces, with pale blue undersides. The code VG+PH is on each side of a white outline cross on the fuselage. The number 102 is in white on the upper fin tip; full Werk Nr is 240102. *Peter F. Guiver.*



#### RAF round-up

FOLLOWING HIS reports on recent RAF activities in last month's issue, S. G. Richards now continues: 'As more Jaguars replace Phantoms in RAF Germany, (eg 2 Squadron and 17 Squadron) then more new serial numbers are noted at the Phantom base of Coningsby. Each of the old Lightning units now using Phantoms have worked up their strength at Coningsby, ie 111 Squadron, 29 Squadron, 23 Squadron, and now at the beginning of March we find resident no less than four Phantoms in full 56 Squadron markings, in preparation for

Continued on page 614

## AIRFIX NEW MODELS FILE

## GRUMMAN F-14A TOMCAT

The F-14A Tomcat is a twin-tailed, combat aircraft that can be best described as the most advanced air superiority fighter flying in the world today.

The F-14A is a variable geometry aircraft and fits the bill as a replacement for the U.S. Navy's F-4 Phantom for the seventies and eighties.

The prototype F-14A made its initial flight on December 21, 1970, and production aircraft entered USN service four years later. Using the Soviet MiG-25 Foxbat and the late series MiG-21 as yardsticks, Grumman have designed an aircraft capable of surpassing both these advanced machines in combat. The chief advantage Tomcat has over its rivals is its variable geometry wing which enables the aircraft to gain more manoeuvrability over a wider speed range.

The wing can be swept from its 20° fully-forward position for low-speed work, to 68° for supersonic speed and combat use. In addition, leading edge slats are fitted for low speed combat manoeuvring enabling tight turns to be made in the order of 9G—or nine times the force of gravity.

The heart of the Tomcat's weapon system is the Hughes AWG-9 radar and its associated AIM-54A Phoenix radar-guided air-to-air missiles. The radar can be used in the search, tracking and attack modes and

targets can be picked up at distances of more than 150 miles and displayed on a TV scope to the missile control officer in the rear cockpit. So advanced is the system that all six Phoenix carried by the F-14 can be fired at six individual targets simultaneously.

The Airfix Grumman F-14A Tomcat accurately reproduces the unique swing wing action of this remarkable aircraft. It contains over 100 parts and you can make either a VF-1 squadron aircraft or a VF-2 machine flying from the carrier U.S.S. Enterprise. The model contains full armaments including six Phoenix Missiles and it can be modelled with the undercarriage up or down.

For up to date news and details of the Airfix models get the Airfix Magazine.



**Grumman F-14A Tomcat  
1/72nd Scale Series 5.  
New to the world's biggest range  
of construction kits.**

#### Technical Details

Date of origin:	1970.
Engine:	2×20,900lb. thrust Pratt and Whitney TF30 turbofan.
Top Speed:	Mach 2.34 (1,545 m.p.h.).
Service Ceiling:	60,000ft.
Carrier approach speed:	120-125 knots.
Wing span:	38ft. 2ins. SWEPT. 64ft. 1½ins. UNSWEPT.
Length:	62ft.
Height:	16ft.
Armament:	Phoenix, Sparrow and Sidewinder missiles. Internally-mounted six barrel M-61 Vulcan cannon.

## GOOD HOME WANTED FOR A CAT WITH TWO TAILS.







**Right** Lightning F3 XP753/X seen at Binbrook in the new two-tone camouflage, sporting full 5 Squadron markings (S. G. Richards). **Below** Lightning T5 XS458 was the first Lightning to appear in full LTF markings and is the only airworthy example to be painted medium grey topsides (Dave Tuplin).



way of experimentation.

In August T5 XS452/Y of "C" Flight 11 Squadron appeared in dark green top surfaces and silver undersides, sporting full 11 Squadron markings. (See picture in *Airfix Magazine* November 1975). This was joined in September by T5 XS458, which appeared in full LTF markings and medium grey top surfaces. (With the LTF taking over "C" Flight, XS452 has now had its 11 Squadron markings replaced by those of the LTR.)

On December 17 one of the decoy F1As was towed in to a Binbrook hangar, to reappear six days later in a two tone grey/green camouflage scheme, similar to that seen on Phantoms, Harriers, etc. By the second week of January the first air-

Continued on page 616

when they move to Wattisham to replace the Lightnings in June/July. The four Phantom FGR 2s were XV470/C, XV489/F, XV497/G and XT909/Y. Each carried red/white checks either side of the fuselage roundel, and the red/orange Phoenix on the fin.

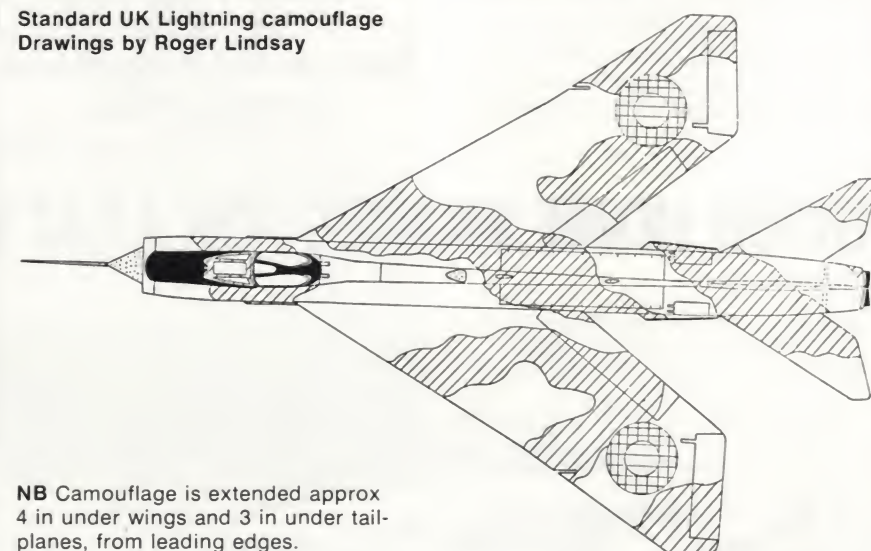
## Lightnings

The Lightning Training Flight (LTF) was formed towards the end of 1975, to operate in a similar capacity to the now disbanded 226 OCU. This latter unit ceased flying when the Lightning left Coltishall in 1974. Lightning conversion training was moved to Binbrook, and was made the responsibility of "C" Flight of 11 Squadron, using Lightning T5s under the direction of Squadron Leader Stewart Rance. During last autumn, "C" Flight received more individualism and became the Lightning Training Flight, with its own unit marking and the addition of Lightning F3s, eg XP751 (ex-Q of 23 Squadron), XR716 (ex-U of 56 Squadron), XP706 (ex-R of 23 Squadron). T5s in use with "C" Flight and now the LTF include XS451, XS457, XS458 and XS452. LTF Lightnings sport a blue lion outlined in black on the fin, along with the initials LTF in blue outlined in red, whilst blue bars are carried either side of the fuselage roundel.

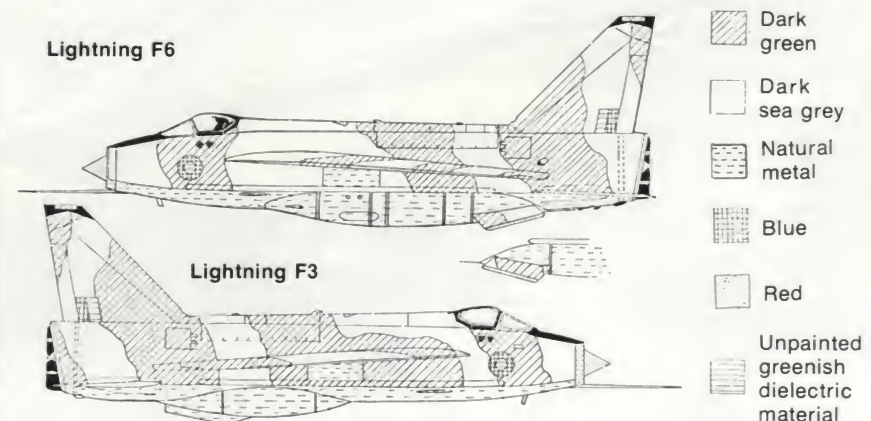
Lightning paint schemes at Binbrook over the past nine months have been the cause of much confusion and speculation, the following should clear up any misunderstandings, and is correct as at the beginning of March.

Binbrook possesses three Lightning F1A "decoy" aircraft, ex-TFF machines, XM173, XM181 and XM183. In the early part of 1975 each was painted medium grey, dark green, and light blue grey respectively, by

Standard UK Lightning camouflage  
Drawings by Roger Lindsay



NB Camouflage is extended approx 4 in under wings and 3 in under tail-planes, from leading edges.



## AIRFIX NEW MODELS FILE

## BUGATTI TYPE 35B

A classic racing car in every sense of the word, the Grand Prix Bugatti Type 35 was a legend in its own lifetime.

It can claim more than 2,000 racing successes during its period of manufacture between 1924 and 1931, and in fact was built in greater numbers than any other racing car—almost 400 of all versions.

Ettore Bugatti, an Italian-born car engineer with a flair for design and a love for fast cars, evolved the Type 35 from his earlier unsuccessful 1923 Type 30 8-cylinder car. The appearance of the Type 35 at the 1924 European Grand Prix at Lyons was nothing short of sensational. It retained the 2 litre 8-cylinder engine, had cast aluminium wheels with eight flat spokes and a superbly finished body tapering from the tail, which housed the 22 gallon petrol tank, to a slim German silver radiator.

A number of versions were built including 1.5 lit., 2.3 lit., and a 2.3 lit., super-charged model known as the Type 35B. This car had larger brake drums, bigger tyres and an enlarged, repositioned radiator. Driven in its heyday

by such figures as Louis Chiron, Malcolm Campbell and Tazio Nuvolari, the Type 35 is still raced today in small numbers.

The Airfix Bugatti is a perfect replica of the original. It contains over 100 pieces including a driver complete with goggles and racing head gear.

You can either make a racing version with this kit or road version with all the intricate details right down to the registration plate. It's even got a spare wheel for emergencies!

For up to date news and details of Airfix models get the Airfix Magazine.

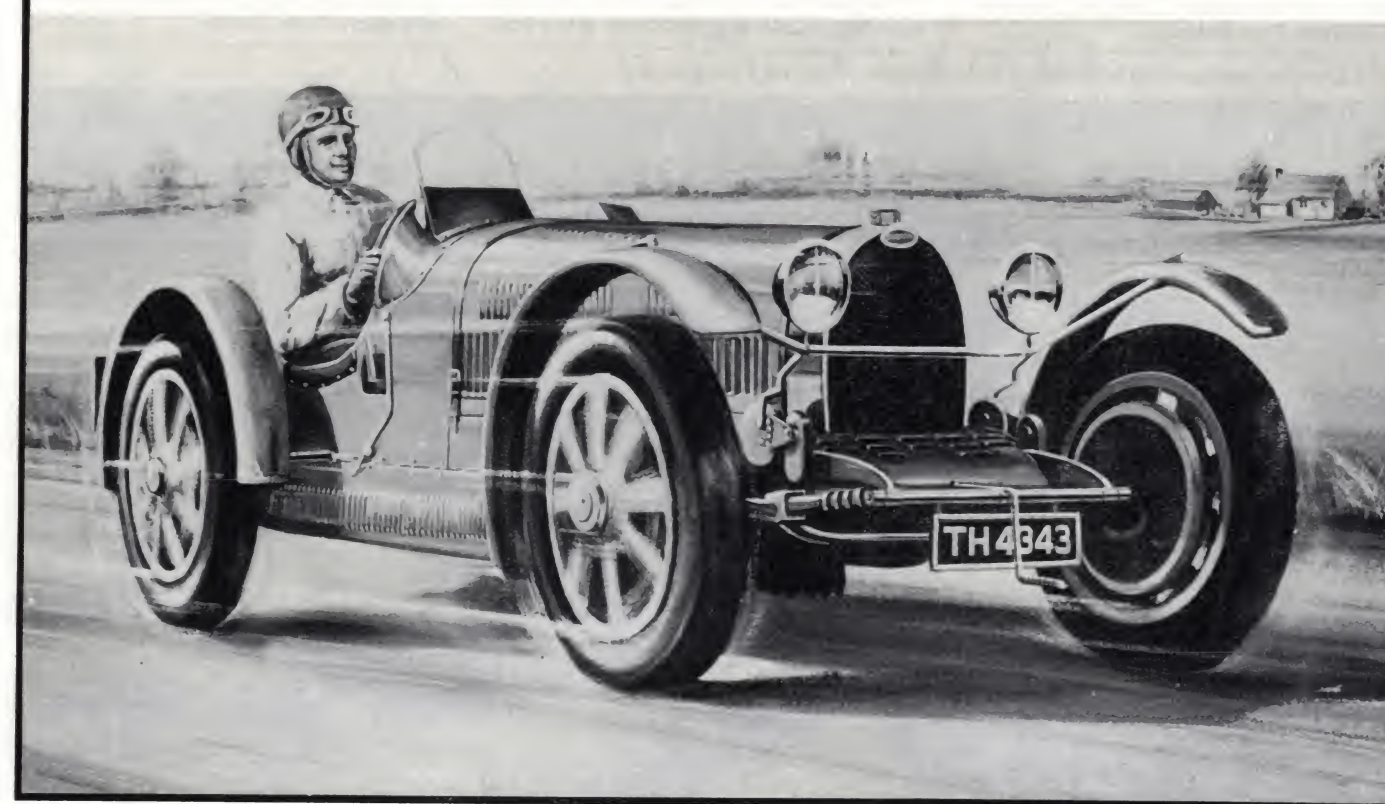


**Bugatti Type 35B.**  
**1/32nd Scale Series 3.**  
**New to the world's biggest range of construction kits.**

### Technical Details

Date of origin:	1924.
Engine:	2.3 litres 8-cylinder.
Tank capacity:	22 gallons.
Top Speed:	120 mph.
Gears:	4 forward and reverse
Wheel Base:	7ft.10½ins.
Track:	4ft.1in.(front) 3ft.11ins.(rear)
Length:	12ft.1in.
Height to scuttle:	3ft.6ins.
Weight:	1650lbs.

## A LEGEND IN ITS OWN LIFETIME.





worthy example, F6 XS899, was in the same scheme, although coded "W" no squadron markings were apparent. On January 19 F3 XP753/X was rolled out in two-tone camouflage and full 5 Squadron markings, ie red bars either side of "B" type fuselage roundel, red 5 on fin, and green maple leaf on a white disc. At the beginning of February F3 XR713/S of 5 Squadron was in the new scheme, followed by a third 5 Squadron F3 a week later, this being XR749/Q. By mid-month F6 XR747/P was resplendent in camouflage and 5 Squadron markings, and was joined around February 24 by F6 XR753/F which was similarly attired. Many enthusiasts will remember this aircraft from last year, when it was coded "A" of 23 Squadron, and featured a white spine and fin.

### Preserving a destroyer

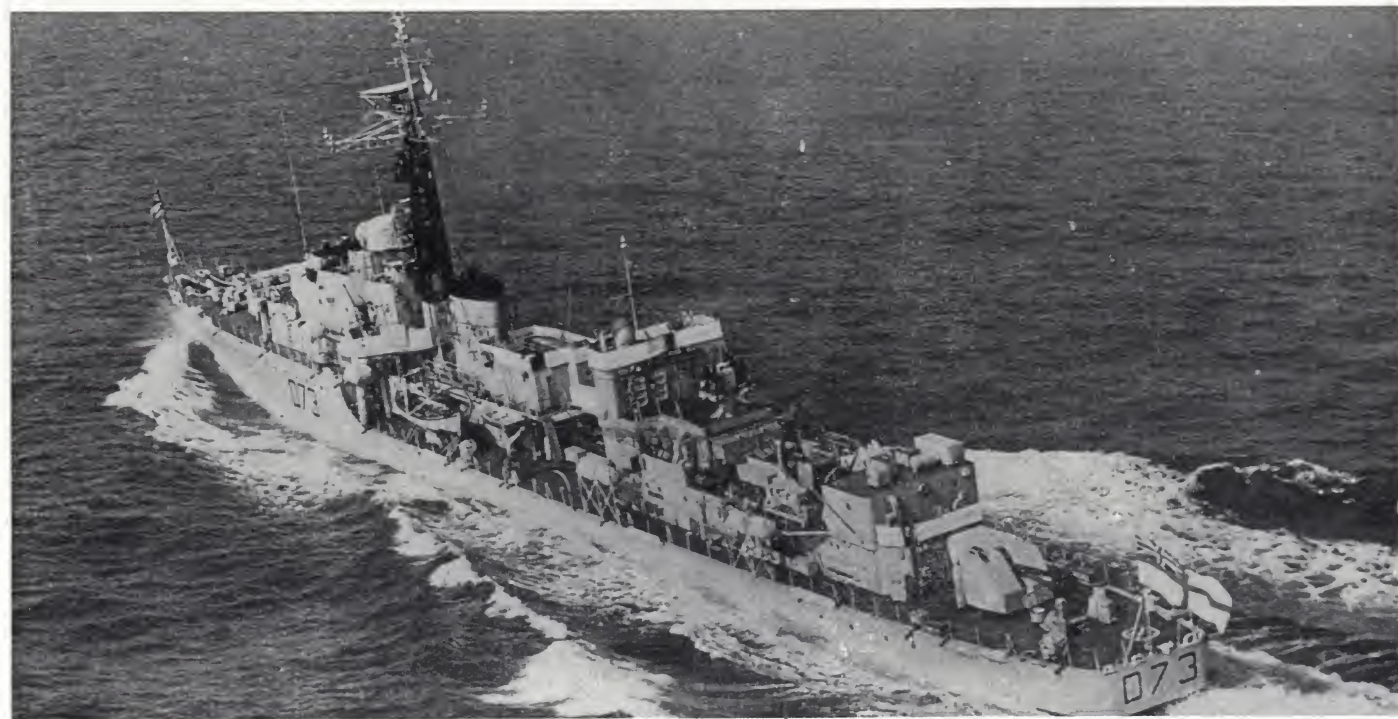
IN 1972 THE Royal Navy retired its last classic destroyer — HMS *Cavalier* (D73) of the CA Class of World War 2 warships launched in 1944. Today this warship is laid up at Chatham in an excellent state of repair and presents a unique opportunity for preservation as a floating museum.

A Trust has been set up under the Chairmanship of Vice-Admiral Sir Ian McIntosh, KBE, CB, DSO, DSC and the Trustees of the HMS *Cavalier* Trust include several Members of Parliament.

The total cost of the project, which envisages that HMS *Cavalier* will become a self-supporting floating museum in a fine berth on the Southampton waterfront, will be a quarter of a million pounds sterling. This may seem a large amount of money to spend on an old warship but to save an important part of our national heritage from the scrapyard it is a small enough price to pay.

Anyone is welcome to help to preserve HMS *Cavalier* by writing for further information or sending a donation to Sir Ian McIntosh, c/o Messrs Coutts & Co, Royex House, Aldermanbury Square, London EC2V 7TH. Paul Beaver.

HMS *Cavalier* seen turning at speed in 1972 (Cavalier Trust via Paul Beaver).



### Air Display Diary 1976

Try to check before your journey, as some of these dates are unconfirmed, and are thus liable to change or cancellation.

July 2, 3, 4	Northampton/Sywell	PFA Rally
July 3	RAF Upper Heyford	USAF Open Day
July 3	Bembridge, IOW	Air Display
July 3	Exeter, Devon	RAFA Air Display
July 4	RAF Mildenhall, Suffolk	USAF Open Day
July 4	RAF Cosford	Museum Open Day
July 4	RAF Church Fenton, Yorks	Air Display
July 14 (Wednesday)	Prestwick, Ayr	RN Open Day
July 17	Strathallan, Perthshire	Vintage Air Display
July 21 (Wednesday)	RNAS Culdrose, Cornwall	RN Open Day
July 24, 25	Portland, Dorset	RN Open Days
July 25	Old Warden, Beds	Shuttleworth Flying Day
July 31/August 1	RAF Greenham Common	Air Tattoo
August 1	RAF Cosford	Museum Open Day
August 4 (Wednesday)	RAF St Mawgan, Cornwall	International Air Day
August 7	RAF Bentwaters	USAF Open Day
August 7	RNAS Lee-on-Solent, Hants	RN Open Day
August 8	Middleton St George	Tees-side Air Display
August 15	Coventry, West Midlands	Air Display
August 15	Barton, near Manchester	Air Display
August 29	Old Warden, Beds	Shuttleworth Air Day
August 30	Goodwood, Sussex	Air Display
August 30	Weston-super-Mare	Avon Air Day

The nine Gnats of the Red Arrows have a full programme of displays planned for 1976, including many of the above events. They will also be appearing at several seaside resorts in July and August, so watch out for local adverts. Peter F. Guiver.

### Warnham War Museum

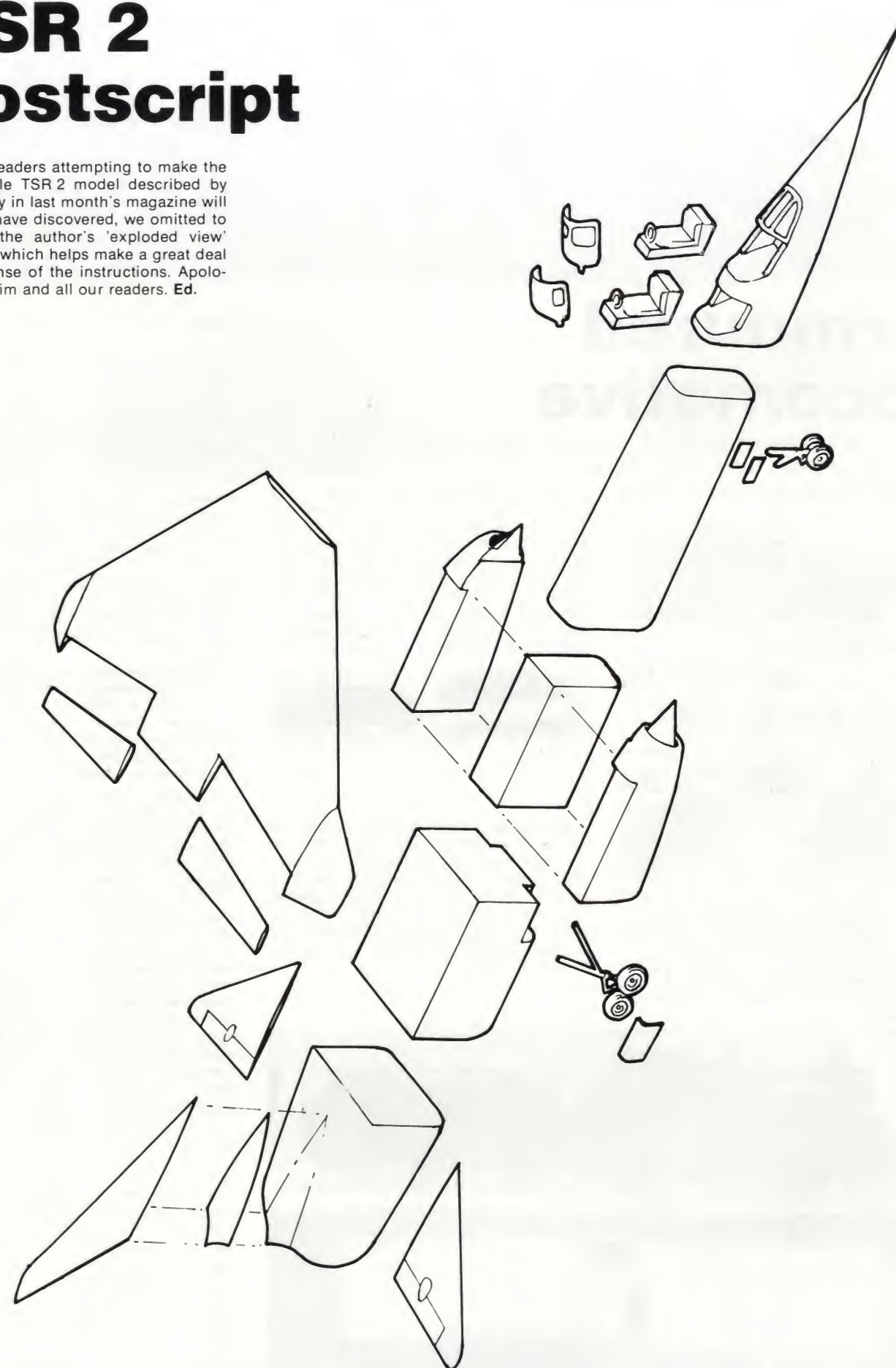
THOSE READERS who saw the October 1975 issue of *Airfix Magazine* will remember that it contained an article on the Lyndhurst Collection at Warnham. The Lyndhurst was recently revisited to see how things were progressing and it took very little time to discover that the winter months have been put to good use. The collection has been enlarged and almost all the vehicles are now under cover in a newly erected hangar, and the previously scattered range of relics, uniforms and equipment has now been moved into the new premises so that the collection has been renamed the Warnham War Museum.

The Warnham War Museum is now even more worthy of a visit that it was at the time

of writing the October 1975 article. Not only can the vehicles be seen under more pleasing conditions but the range of accessories on the vehicles has been increased. Some of the items among the vehicles are new to the collection, one of the more important of which is the prototype FV 432. Round the walls of the museum are a number of World War 2 aircraft relics dug from the South Downs and elsewhere, and cases contain such items as radios, badges, uniforms and many other interesting relics of the last world war. If you can manage a visit you will find it well worthwhile. The Warnham War Museum is just to the North of Horsham, Sussex, on the A24 Horsham to Dorking road. A small charge is made for admission. Terry Gander.

## TSR 2 postscript

AS ANY readers attempting to make the 1:72 scale TSR 2 model described by Tim Perry in last month's magazine will already have discovered, we omitted to include the author's 'exploded view' diagram which helps make a great deal more sense of the instructions. Apologies to Tim and all our readers. Ed.







# Armoured locomotive

Part 1 of a new series on building a Boer War armoured train from Terry Wise

THE USE OF railways for military purposes was firmly established by the time of the Franco-Prussian war, but it was not until 1882 that the armoured train was invented. In that year Britain became involved in a war in Egypt, the opening moves of which were the bombardment of Alexandria by a British fleet and the capture of that city by a small Naval Brigade. Two of the brigade's officers, Captains Fisher (later First Sea Lord) and A. K. Wilson VC, devised a plan to create an offensive weapon, a land 'battleship', with which to hold off the overwhelming number of enemies surrounding the Naval Brigade until infantry reinforcements could arrive from England.

Amongst the captured material was a locomotive and some trucks, and sailors were at once set to work to create the first armoured train. The locomotive's boiler was protected against bullets by hanging sandbags round it and the trucks were armoured with steel plates two inches thick, making them immune to all except a direct hit. A 40 pdr Armstrong naval gun was mounted on one wagon; a Nordenfeldt 1 pdr pom-pom on another; and two Gatling guns on a third. The gun positions were protected by sandbags. The Gatlings, and probably the Nordenfeldt, also had gun shields.

When assembled for action the armoured train consisted of first, the 40 pdr with officers and gun's crew; second, the Nordenfeldt wagon and 40 men; third, the Gatling wagon and another 40 men; then the locomotive. (This order was apparently varied sometimes.) When this train went into its first major combat, on August 5, it also had a number of armoured wagons behind the locomotive for infantry. The 40



**Top of page** The locomotive on which the model is roughly based. This armoured train was destroyed by the Boers at Kraaipan. **Above** Showing how the tender sides need to be cut for the conversion. **Below** The assembled and converted kit before adding armour plating. **Bottom** The finished model locomotive and tender before painting.



pdr proved extremely effective and silenced Arabi Pasha's 9 pdrs early in the combat.

The second armoured train must be credited to the Egyptians in revolt against the Khedive! By August 25 these rebels had mounted a cannon on a railway truck and early the next morning a locomotive pushed the truck forward to support the front line entrenchments. At 6 pm the same day an armoured train is reported to have advanced from Kindji Osman and been fired on by the British. Some of the shells exploded close to the train but there was no response from the Egyptians. The train reappeared on the 29th but withdrew when fired on by the British 40 pdrs. (Fisher's own train was not used after the 27th because the rebels brought up a 15 cm gun which shelled the train whenever it ventured out.)

Another armoured train was prepared at Ismailia by the Navy (a captured Krupp gun mounted on a railway truck was the main armament, manned by the Royal Marine Artillery) and this took part in the first and second battles of Kassassin (August 28 and September 9). Another Navy armoured train played a supporting role in the battle of Tel-el-Kebir on September 13. An armoured train was used again in Egypt in 1886, against the forces of the Mahdi. This train was commanded by Lieutenant Machell RN and was based at Halfa.

During the Boer War of 1899-1902 railways played a most important part in conveying troops and supplies over vast, arid distances, yet were subjected to continual harassment and destruction by the Boers, operating mainly as guerrillas. Armoured trains were therefore introduced to protect these vital lines of communication, but the early ones were rarely armed with more than rifles and a Maxim or two and proved ineffective; in fact the fate of several such trains convinced many people that armoured trains were useless.

By late 1900 quick-firing naval guns were being mounted on the trains and from then on they played an increasingly important role in the war, protecting lines of communication, harassing the Boers, and proving very effective at preventing the Boers slipping from one region to another. By the end of the war there were 20 armoured trains in operation and they had fought many successful actions.

The armoured train of 1900-1902 normally consisted of a locomotive in the middle of the train, armoured wagons for infantry and Maxims, at least one 3, 6 or 12 pdr quick-firing gun mounted on a separate

Continued on page 620



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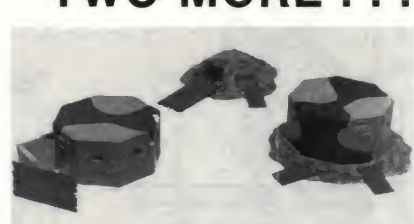


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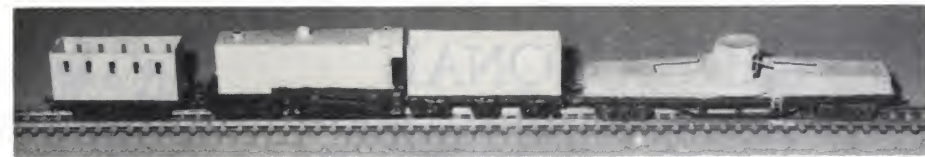
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Boer War armoured train with rifle wagon, locomotive and tender, and gun wagon. The other items will be modelled in subsequent articles.

wagon, a water tank truck, accommodation and kitchen cars, searchlight dynamo and telegraph trucks. Earlier trains usually had, first, a truck containing plate layers' tools, a break-down gang and the guard; second, an armoured truck; then the locomotive, followed by a second armoured truck and an armoured wagon with a Maxim. The famous incident in which Winston Churchill nearly lost his life involved this type of train, employed on reconnaissance work. This incident thoroughly discredited armoured trains and afterwards all scouting in the Colenso area was carried out by the cavalry.

### Modelling the locomotive

The Airfix City of Truro kit is best for a 1900 locomotive conversion (built 1903 and therefore close to the correct date) but almost all the bodywork disappears beneath armour plating during conversion and the kit used is not too important; the Prairie tank would do.

Armoured trains were almost always improvisations, real life conversions of existing locomotives or rolling stock, and

were armoured and armed with anything to hand. Some locomotives of the Boer War were armoured merely by placing sheets of steel along the sides of the boiler, leaving the top open; but others were completely encased in armour plate, with only the funnel, vision slits, and access to the coal left open. Armouring was so diverse that a completely armoured locomotive of a simple type could easily be attributed to either the Boer War, World War 1 or even World War 2. In subsequent articles we shall be dealing with 20th century armoured trains, so modellers and wargamers may prefer to model an armoured engine which would not be out of place in any decade from 1900 to 1940. This is the type of armoured locomotive described below.

**Conversion** Using the City of Truro kit, assemble the Main Frame as kit instructions. In Stage 2 (boiler assembly) ignore instructions 12-16. Part 8 (cab front) should have its vision ports extended upwards through the top edge. For the coupling I used Part 24 ('chain' removed) to get a more realistic model, and used scale chain to link the units of the finished train. In

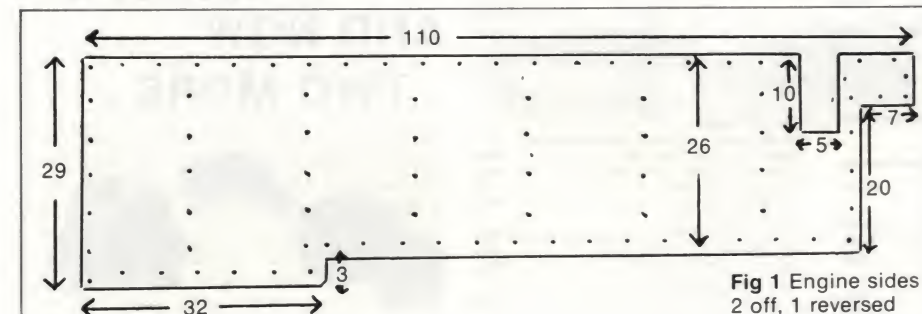


Fig 1 Engine sides 2 off, 1 reversed

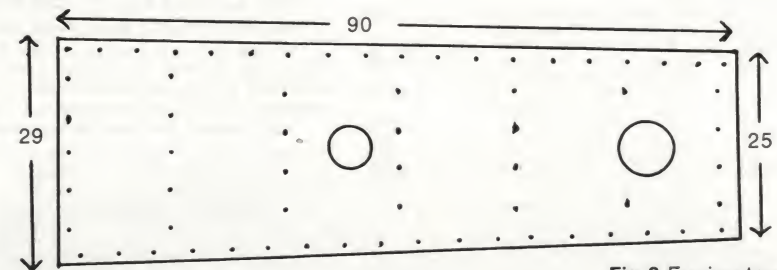


Fig 2 Engine top

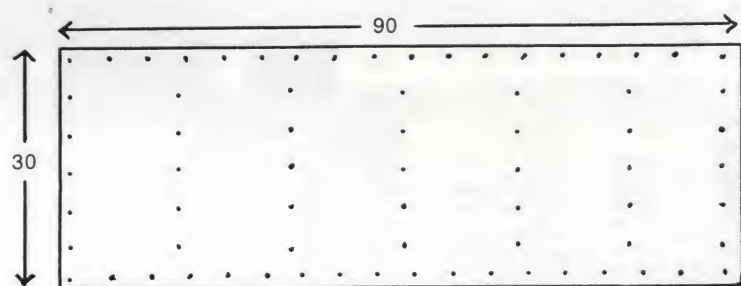


Fig 3 Tender sides 2 off

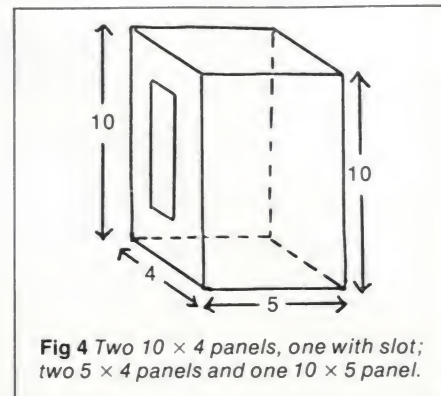


Fig 4 Two 10 x 4 panels, one with slot; two 5 x 4 panels and one 10 x 5 panel.

Stage 3 (tender assembly) Parts 4 and 7 (tender sides) are cut off at the rib above the wheel mountings — see photo. Cement rear (Part 6) and front (Part 3) on to side frames. Fit wheels to ensure spacing between the sides is correct. Cap with 'coal' (Part 5) and add all other parts from instruction 7 on, except do not cement handrails to sides. Again a non-working coupling was used; Part 9a trimmed to just a hook.

**New parts** The drawings show shape and measurements for engine sides (Fig 1) and roof (Fig 2), and for tender sides (Fig 3). 10 thou plastic card was used for these riveted surfaces, placed face down on cardboard, then the rivets created by pressing the point of a fine ball pen into the plastic card. 30 thou plastic card cut to the same size was cemented to the 10 thou card for rigidity. The rear plate for the tender is 26 x 36 mm high for the 30 thou, 28 x 36 high for the 10 thou, the extra 2 mm allowing an overlap at the joints. Front panel for the locomotive is 22 x 29 mm high for the 30 thou, 24 x 30 for 10 thou. Small cut-outs have to be made in the bottom edge to fit over kit ribs. The boiler is reached via a door in the centre of this panel, represented by rivets and short lengths of micro-strip for hinges and catch. The door is 12 mm square.

Once side and front panels have been added to the engine, fit the cab roof (Part 10) with its edge trimmed slightly to fit between the new sides. Add a 3 mm deep strip of 30 thou card to extend the roof over the rear edges of the new sides. Add top armour plate, the 30 thou backing (88 x 27 mm, tapering to 22 mm) fitting between the side and front plates, the 10 thou riveted surface covering the joints — measurements as drawing.

The funnel is left exposed but the regulator dome is protected by a tube, a 20 mm long by 5 mm high strip of 10 thou card, cemented within the hole in the top of the panel.

All armour plate was painted dark grey with the remainder left in the black plastic of the kit parts.

Vision is restricted through the enlarged apertures in the cab front but this was true of the real thing: some engines had a vision port only on the driver's side and used mirrors to enable him to see out the opposite side. This was for safety reasons. The locomotive sides allow for vision extensions to be added; see Fig 4. The plate with the vision slot, and the corresponding plate at the rear of the box, fit flush on the rear of the 10 x 5 mm panel. □



## British Army uniforms

1660-1900

Line infantry 1799-1800 by Bryan Fosten

AS STATED in a former article, the last decade of the 18th Century saw the final abandonment of the lapelled coat and the adoption of single-breasted jackets with more serviceable shorter skirts.

In October 1797 the elaborate lapels were finally discarded for the NCOs and the rank and file and, besides the facing colour, which was displayed on the collars and cuffs and the shoulder straps, the regiments were identified by the pattern of the white worsted lace, trimming the collars, the shoulder straps and stitched to the coat in loops around the buttonholes and front, on the cuffs and on the pocket flaps in the skirts. A triangle of the same lace was stitched over the back seams at the top of the central back vent. This first pattern single-breasted jacket was cut so that the turnbacks of the skirts were made to start from the bottom of the fronts curving away to the rear. The coat came well down over the stomach and hid the waistcoat. The shoulder straps were three point ended and terminated at the sleeve end in worsted ornaments. These were either white or were dyed in the facing or other colours.

The slashed pockets in the skirts were normally horizontal and provided with three pointed or scalloped flaps. In some regiments the flank companies were distinguished by diagonal pockets.

The new jackets were lined with shalloon and this lining was brought into view where the skirts were turned back on the hips. In some regiments a fillet of the regimental lace was run along the bottom edge of the jacket and the turned back skirts.

The laced loops on the jackets were put on in one of three ways — either square ended, point ended or in an open loop called a 'bastion'.

The grenadier and the light infantry companies had red cloth wings. Shaped in a form called 'shells', they were stitched across the shoulders at the seam between the sleeve and the body of the coat and were edged all round with the regimental lace. Across the red 'shell' were six 'darts' of similar lace. In some regiments, but not all, the outer edge of the wing had a short white wool fringe.

Buttons were set on the coat either at equal distances or in pairs which usually, but not always, corresponded with the spacing of the officers' buttons. The buttons were pewter and were decorated with the regimental number normally enclosed within a wreath of palm or laurel. In the case of regiments with ancient badges these were often displayed on the buttons either over or behind the Arabic numeral.

This was a transitional period in the dress of the British soldier. It was a big step forward from the old lapelled, long skirted

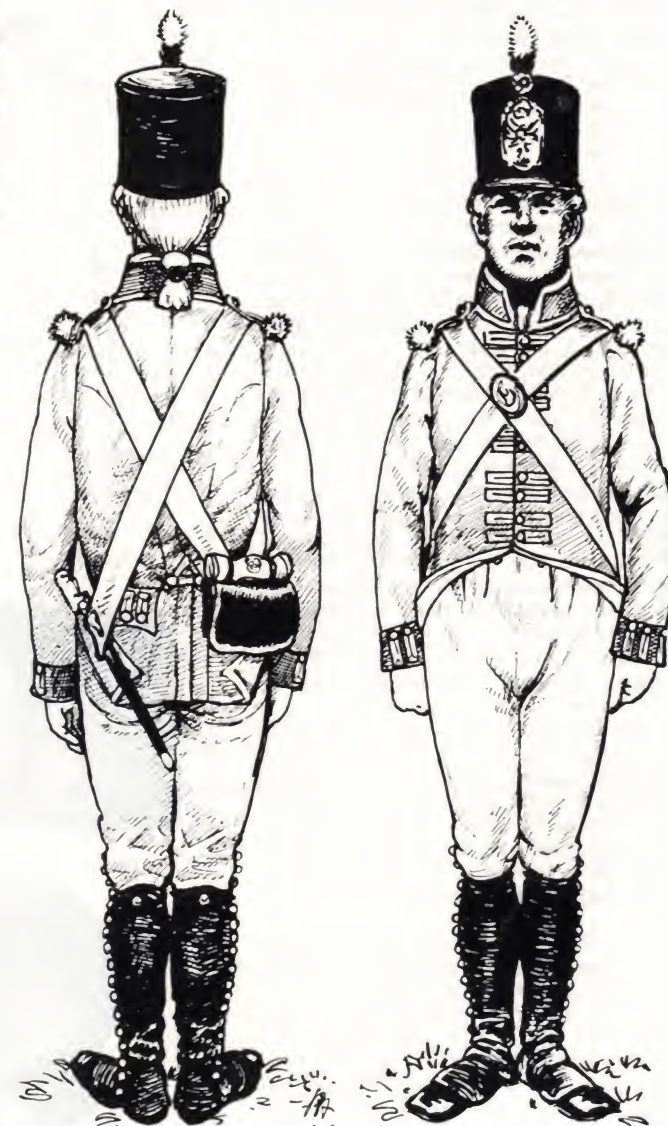
coats usually worn flapping away from the body and revealing waistcoat and breeches. The new coats were smarter and more soldierly in appearance and with them came changes in the appearance of the non-commissioned ranks.

What little evidence remains confirms that the badges of rank of the British NCOs in the last decade of the 18th Century were shoulder ornaments. The late P. W. Reynolds made several very careful drawings of paintings of the Royal Fusiliers (7th) which were executed circa 1790. These I consider can be taken as a basis for a detailed study of this subject. Major Nicholas Dawnay refers extensively to these drawings by Reynolds in his exhaustive study of the subject of NCO's rank

badges. Without going into regimental detail, the badges of the Sergeant Major comprised a silver strapped and fringed epaulette worn on the right shoulder. Around the strap of the epaulette is a twisted cord in coloured silks. The epaulette has a padded and twisted silver crescent and the strap has two lateral red silk stripes. On the strap is a regimental badge. The sergeants have similar silver epaulettes but without the expensive silver crescent. In lieu the twisted silk edging of the strap part is continued round the end of the strap with the silver fringe suspended from under it. The corporals have a plain white worsted epaulette with a short white fringe. In other regiments gold lace may have been used in lieu of silver.

However, there is also evidence that in certain regiments sleeve badges were also being taken into use before the turn of the century and certainly before the order was issued granting chevron badges to NCOs. In the Chronicle of the Oxfordshire and Buckinghamshire Light Infantry for 1894 we learn that, as early as 1795, lance sergeants of the 43rd Foot were wearing two white chevrons, and that 'lance' corporals had one similar chevron. It is also stated that these chevrons were worn on the right upper sleeve with the points

Back and front view of a private soldier as he would have appeared in the new uniform at the turn of the century. Note the two small buttons at the back of the black gaiters.







**Key to drawings** A The new jacket. Note the pinched appearance of the shoulders. Inset left is the shoulder strap and button of the 26th Foot. To the right is the back view of a grenadier company jacket of the 87th Foot. Below right is a wing from the same jacket. B The waistcoat showing the small standing collar. C The shako plate. D The first 'chako' or shako. E Shoulder straps of sergeant major (top), sergeant (centre) and corporal.

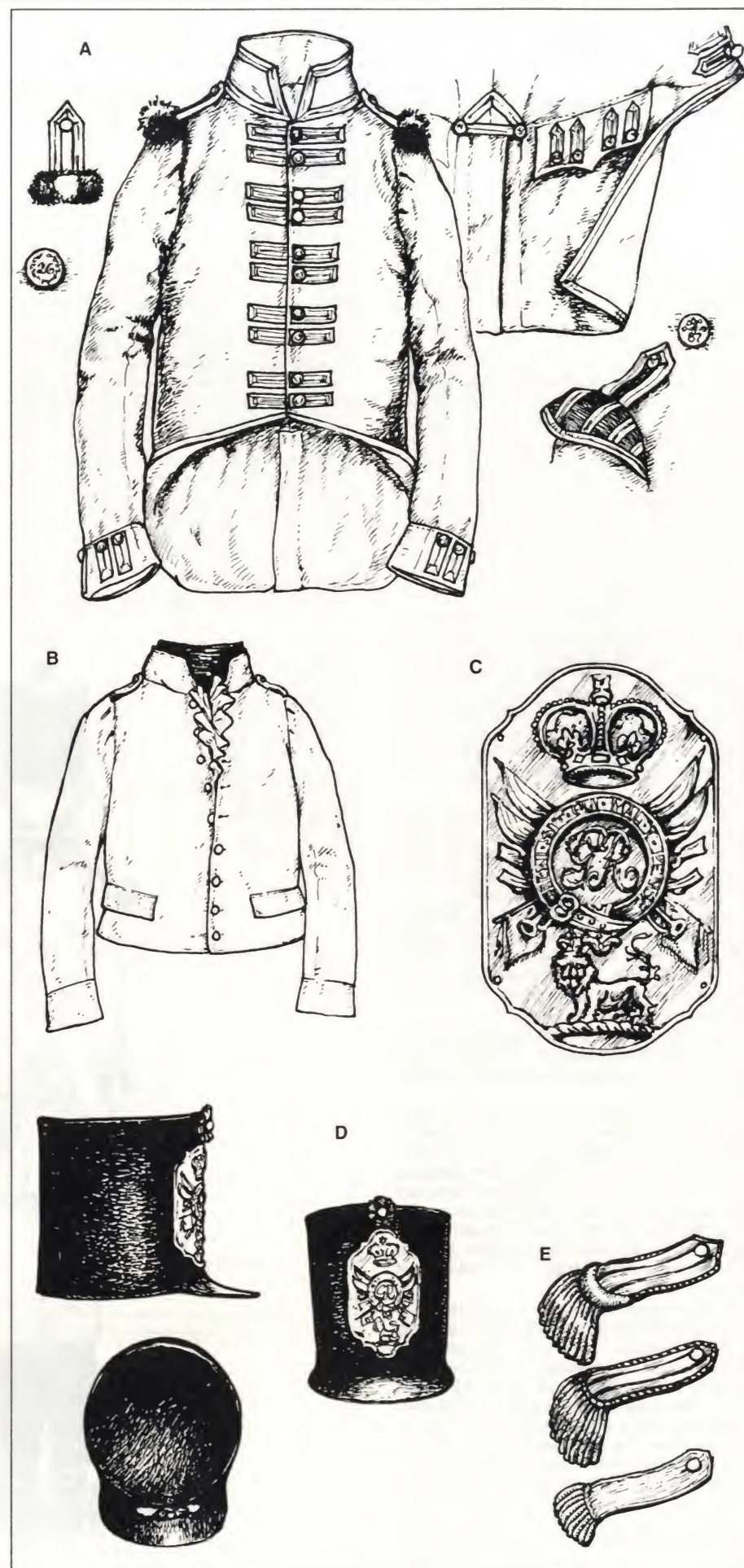
uppermost.

Nevertheless, as late as 1802 orders still stated that corporals were distinguished by 'shoulder knots of white silk' and that for the Regiments of Fusiliers, and the flank companies of Regiments of the Line a shoulder 'knot' was to be worn on both shoulders. The inference here is that the centre companies were still to wear their knots on the right shoulder only.

The only difference in the jackets of the sergeants and the privates was the lace and the quality. The former had plain white silk loops. There is reference to the sergeants' coats being made of *scarlet* cloth and that the coats of the rank and file were *red*. This has been the subject of much debate among artist historians. What is 'red' in this context? It is frequently stated that British infantry wore 'brick-red'; which is not much help. For what is brick red? A glance at any old British building faced with red brickwork underlines the dilemma. 'Red' bricks can be anything from what we could call 'brown' to a deep 'maroon'. There is always a big variation in colour. I have examined several jackets of the early 19th Century period. There is, for example, a very fine example in the Brunon Collection at the Musée de l'Emperi. This is shown on page 128 of *Military Dress of the Peninsular War* by Windrow and Embleton. Windrow describes it as 'dull red', a far better description than brick red. In Paris there are three further jackets of the Peninsular War period. One in the Collection of Baron Louis de Beaufort, one in the Vanson Collection and another in the Collection of Raymond Desvarreux. All are a dull red but not a brownish red. They were probably dyed with cochineal. This produces a red which differs from the almost vermillion of the 'scarlet' worn by British officers but bears little resemblance to the colour we associate with bricks. It is significant that the descriptions of the earliest British uniforms, those of the New Model Army of 1645, are described as 'Venice Red'.

In the Highland Regiments the sergeants wore crimson sashes over the shoulder. In the other regiments these sashes were worn around the waist, over the coats. Royal regiments had a central stripe of blue, regiments with red or purple facings had a white central stripe, all other regiments had a central stripe in the facing colour.

From 1767 regiments had been wearing white waistcoats and breeches except in the case of the 3rd; 14th; 22nd; 27th; 31st; 40th; 48th; 52nd; and 61st Regiments, who maintained their buff waistcoats and breeches and turnbacks to match their facings. The old white gaiters had been discarded in favour of black woollen ones. These gaiters only came up to the under-side of the knee and were buttoned with



pewter buttons.

As the century closed the old black felt hat had reached its largest proportions. Until 1796 it had been cocked with the right end over the right eye but with the new jacket it was worn across the head. It proved difficult to wear especially when the man was executing his drill. Examination of paintings in the National Army Museum reveals that to fire the musket the hat had to be worn at an uncomfortable angle and indeed strapped to the head by a narrow cord passing under the queue around the nape of the head. Battalion companies had white feathers tipped with red, shortly altered to rooted with red. Some wore black feathers. Grenadiers wore white feathers and light infantry green. In full dress the grenadiers wore the bearskin cap but seldom on service. The end tassels of the hat stays (used to tighten or loosen the cock) were allowed to droop from the two ends of the bicorne. They were white mixed with the colour of the facings. The Sergeant Major probably had silver or gold cords and tassels to the hat. Light infantry continued to wear regimentally diverse caps, round hats, etc.

Sergeants had finally discarded their cumbersome halberds and had taken nine foot pikes into use. These had pikeheads fashioned after German boarspears with cross-bars below the blade. Drill sergeants carried hazelwood canes on white straps suspended from the second button of the coat and thrust through the sash under the left arm. On parade they wore white gloves.

Such was the appearance of the British infantry of the line in 1800.

In December the same year the final step was taken and the old hat, worn in such a variety of ways throughout the 18th Century, was finally discarded and a new cap called a 'chako' or 'shako' was authorised. A leather cap made in one piece (?), including the small peak, it was about 9 inches high, 7 inches across the top and the peak was about 2½ inches broad. The cap had a cockade of black crêpe and a large brass plate on the front about 6 inches high and 4 inches wide. This plate had a universal design including the Royal Cypher set in the centre within a Garter inscribed 'Honi Soit Qui Mal Y Pense' with, on either side, trophies of arms and flags. Above the garter the Royal Crown and below is a Crowned Lion standing on an heraldic wreath. The plate had a raised edge.

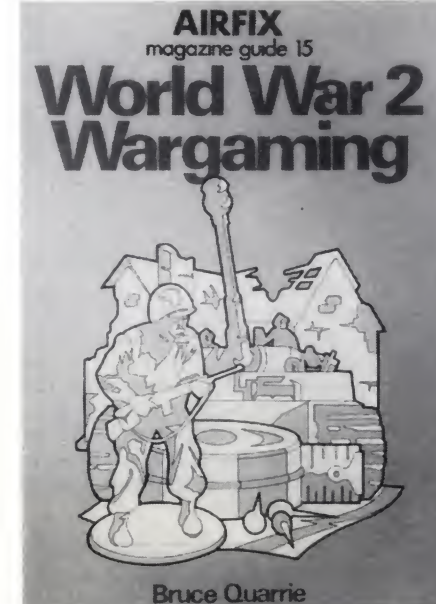
The events leading to the introduction of the cap were as follows. In November 1799 a sketch of a leather cap was sent to the Prince Regent, in December he approved it, and on December 21 1799 it was decided that the cap should be leather with the 'flesh side out'. Production began and in December 1800 it was decided to 'japann' the caps.

This was the 'stove-pipe', an unloved headdress which proved very uncomfortable. Officers continued to wear the hat although on overseas stations the use of a brimmed 'round hat' fashioned after the civilian mode was becoming popular.

A final significant detail rounds off our study of the 18th Century. Before 1800 loose (white) overalls were taken into use by troops on exercise and executing their drill. They were not to be permanently acceptable garments until after the Walcheren campaign.

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All F-100s of the 122nd TFG carried this superb ANG bicentennial badge in line with the ejector seat. Figure, mountains, year oval and rocks are bronze; stripes on flags are red and white with blue and white corner detail; sky (with drawings of a Wright Flyer and a Phantom) is pale blue; area under mountains is light grey; ANG scroll medium blue; all other detail is black and white (Peter Guiver).

FOR MANY YEARS the North American F-100 Super Sabre was a familiar sight over Eastern England, operating from such bases as Wethersfield, Lakenheath and Upper Heyford. Inevitably, modernisation, in the shape of F-4 Phantoms and F-111s, ousted the F-100, and the only appearances of Super Sabres in recent years have been the occasional visits by Royal Danish Air Force machines, mainly for air displays.

However, the F-100 returned in force on April 22 when the 122nd Tactical Fighter Wing, Indiana Air National Guard, deployed 14 F-100Ds and three F-100F two-seaters to RAF Lakenheath in an operation known as Exercise 'Coronet Prize'. As part of a cost-cutting programme affecting regular USAF operations, greater reliance is being placed on Air Force Reserve and Air National Guard units, and this involves overseas deployments.

Formed when the US Air Force became independent, the ANG has a strength of 95,000 men manning 24 Wings embracing 91 flying units with support organisation backing them. Aerospace Defense Command's jet interceptor force is 70 per cent ANG whose units also provide a major portion of the air defence for Puerto Rico and total air defence of Hawaii. A third of Tactical Air Command's highly mobile fighter, airlift and reconnaissance forces are provided by ANG.

19 operational aircraft types equip the ANG which is currently receiving more modern types. During the last five years 85 per cent of its flying units have equipped with such aircraft as the KC-135, LTV A-7D Corsair II, F-4 and RF-4.

The 122nd Tactical Fighter Wing deployed to Lakenheath has a tactical sup-

# SUPER Sabres!

Report from the recent Air National Guard F-100 visit to Lakenheath from **Peter Guiver** and **Michael Bowyer**

port role. Its headquarters element is at Baer Field, Fort Wayne, Indiana, where the 122nd Tactical Fighter Group is also based. Additionally the 181st Tactical Fighter Group based at Hulman Field, Terre Haute, Indiana, is part of the Wing and personnel of both Groups deployed to Britain.

The 122nd Wing traces its origin to 1921 when the first air unit of the Indiana National Guard formed at Kokomo, Indiana, as Headquarters Battery, 81st Field Artillery. It became the 137th Observation Squadron, then the 113th Observation Squadron. Today the 113th Tactical Fighter Squadron assigned to the 181st Tactical Fighter Group is the oldest unit in the

Indiana ANG.

After Pearl Harbour the 113th began flying long-range anti-submarine patrols using the O-49 and O-52, then provided air support for the army in training. It reformed after the war as the 113th Fighter Squadron joining the ANG in May 1946 and was followed up to 1950 by other squadrons also flying P-51s. F-80s were assigned in 1954 and F-86s in 1956 replaced by F-84s in 1958. In October 1961 during the Berlin Crisis the 122nd Tactical Fighter Group was called to active duty, moving into the NATO base at Chambley where, with personnel and aircraft of the 180th and 181st Groups and the Air Force Reserve, the



**Top** F-100D 56-3307 of the 113th TFS, 181 TFG. FR probe fitted as standard on starboard wing root. 307 in grey on yellow nosewheel door. Standard trim with bright metal rear fuselage (Michael Bowyer). **Above** F-100D 56-3303A of the 163rd TFS, 122 TFG. Yellow band across fin with edging. Light grey tail numbers, normal ANG fin crest, bicentenary ANG crest on forward fuselage. Black 303 on blue-white-red nosewheel door. Yellow vehicle behind. Previously served with the 49th and 50th TFWs (Michael Bowyer). **Below** F-100 line-up at Lakenheath. All the Super Sabres wore standard USAF tactical camouflage (Peter Guiver).



122nd stood at readiness until August 1962. Leaving their F-84s in France for the regulars, the Guardsmen went home to fly RF-84s, switching to F-100s in 1971.

Also at Lakenheath was the 163rd Tactical Fighter Squadron, originally activated as the 365th Fighter Squadron which, during the war, was part of the 258th Fighter Group, 9th Air Force. The 163rd was allotted to the ANG on May 24 1946. Both squadrons visiting Britain fly the F-100D although the Super Sabre is no longer part of active USAF squadrons.

For the deployment to Lakenheath, the 181st TFG flew to Fort Wayne to join the 122nd TFG, the Wing then setting out for the Atlantic crossing in three waves. 18 machines were due at Lakenheath, but one F-100 had to divert to Loring AFB, Maine. Routing near the Azores, the F-100s were refuelled nine times by KC-135 Stratotankers. Whilst this may seem a high number of refuellings, the policy was to keep these single engine fighters 'topped-up' as much as possible in the event of sudden bad weather or a last-minute diversion. Support for ground crews and equipment was provided by C-141 Starlifters.

During their two-week stay at Lakenheath, the ANG operated a varied programme of exercises and training missions in co-operation with other US and NATO units, returning to Indiana on May 6.

F-100D 56-3028 of the 122nd TFG, 122nd TFW, Indiana ANG, receives servicing on the line at Lakenheath. Note lowered air brake. Nosewheel door bands were yellow and white (Peter Guiver).



**Above** F-100 F two-seater from the 181st TFG, serial 56-3746. Nosewheel door is red with white border and figures (Peter Guiver). **Left** Fin detail on F-100D 56-3024 of the 122nd TFG. Fin band yellow with thin white edging. INDIANA in yellow. ANG badge is white with yellow lining and dark blue other details. Compare serial presentation with that of the 181st TFG, all letters and digits being in grey (Peter Guiver). **Below** Side view of the same aircraft, which alone carried an additional badge on the nose (see next page). Nosewheel door red-white-blue (Michael Bowyer).



The 163rd Squadron's F-100s could be identified by a yellow band edged white painted across the fin and rudder of its aircraft. Those of the 113th had red (uppermost) — white and blue bands across the fin tip, 'INDIANA' appearing in black on the white band.

The F-100s — Ds and three Fs — wore the usual camouflage scheme of two shades of green and tan with the custom-

ary very pale grey under surfaces. Camouflage patterns were very similar on all aircraft but the colour shades varied. Block designations were absent from all aircraft which carried their 'last three' in light grey on their fins preceded by AF and two preceding serial digits. These latter two items were in grey on the 163rd's aircraft, in black on the 113th's. On the 163rd Squadron's machines the usual ANG badge was





Also on view at Lakenheath was an ex-French Air Force F-100D, still in full FAF camouflage and markings. It is planned to restore this aircraft to the colours carried by the resident 48th TFW in 1960, when the 'Statue of Liberty' Wing first moved to Lakenheath from Chaumont AB, France. This is one of a number of ex-FAF F-100s now being stored in this country at RAF Sculthorpe, and the machine at Lakenheath will be mounted by the gate on the road to Brandon when repainted. Similar 'gate guards' are planned for Woodbridge, Wethersfield and Alconbury, whilst the machines at Sculthorpe will probably end their days on the scrapheap. The F-100D carried 42269 in black at the fin base on tan-olive green-dark grey camouflage. Under surfaces were blue-grey. 11-ER appeared in black amidships the aircraft having belonged to EC 2/11 Vosges. Small French roundels were outlined yellow. On the starboard side of the fin a black eagle trimmed yellow clutched a white face trimmed black. The port fin side had a three-red two-white pennant which tapered aft and carried a black motif.

The Super Sabres that are being stored in this country were originally purchased for the French Air Force by the USAF under MDAP funds, and now that they are being replaced by Jaguars they are being returned to US control. Also destined for Sculthorpe are several Mysteres which were also procured by US funds.

For good measure the 48th Tactical Fighter Wing displayed three F-4Ds with fin tips in squadron colours which recently replaced the tricolour tail flash. F-4D-27-MC 65-648A had a blue fin tip, F-4D-29-MC 66-502 had red. F-4D-28-MC 65-721A had the tan of the camouflage replaced by light green and wore a yellow fin tip. 65-648A had a black lower half to its nosewheel door, '721 had yellow with 0721 in black and '648s number was light grey. 66-502 had a red half nosewheel door with 7502 in black.

In all, a splendid array of suitable model subjects. Grateful thanks must go to Major Mark Foutch, Chief of Information at RAF Lakenheath, and Captain Phil Junker, Information Officer with the Indiana Air National Guard detachment, for their kind help during the recent return of the Super Sabre. □

carried on the fin above 'INDIANA' in yellow. On both sides of the forward fuselage this squadron's F-100s had a new ANG badge featuring the Bicentenary emblem including the minuteman symbol. The pilot's name and that of the crew chief appeared in white on a black area at the base of the forward section of the cockpit canopy. All aircraft carried dark green drop tanks with light grey under surfaces.

An exception was 56-3024 AF 63 024. This had the 122nd TFG badge below the front of the cockpit canopy. The pilot's name was 'C BARNES LT COL'.

The 122nd TFG brought along one F-100F 56-3837A. A detail feature of this and all the others was a coloured nose-wheel door bearing flight markings, four aircraft equipping each flight. 56-3837A had its door marked with red-white-red horizontal stripes. F-100D 56-3303A and 55-2949A had red-white-yellow doors, 56-3028A and 55-2917 yellow-white-yellow, 56-2863 red-white-red, 56-2959A yellow-white-blue and 56-3024 red-white-blue. The initially mentioned colour was uppermost. All had their 'last three' in black on the centre band.

The 181st TFGs aircraft had only the regular ANG badge on the fin sides. Flight colours consisted of an almost white outline surrounding a colour block upon which the 'last three' appeared in light grey. 56-3179 had a dark blue centre, 56-3361A and 56-3331 red, 56-3220 dark green, 56-3307 and 55-3552 had yellow. An oddity was 56-3110 whose finish included a very rich green quite unlike the colouring of any other in addition to which it had a shiny finish.

**Above** Also on view at Lakenheath was this ex-French Air Force F-100D 42269, coded 11-ER, which will become a gate guardian. The fin badge (a vulture clutching a skull) is of EC2/11, but the code is of EC1/11. Over all faded USAF-type camouflage (Peter Guiver). **Below** Detail of the 122nd TFG badge carried on the nose of 56-3024 (see previous page). White dart-like aircraft with pale blue detail on a mainly yellow shield with medium blue central area. The dark area, the four stars and the unit title are dark blue. Crew details white on black panel. Servicing instructions in black or yellow (Peter Guiver).



**Below** F-100F 56-3795 with others of the 113th TFS, 181st TFG. Red-white-blue fin tip, red nosewheel door with white outline and 795, AF and 63 in black on fin, 795 white. Rear fuselage heat-marked bare metal (colours on F-100s in this area range from bright polished metal to dull browns and vivid purples). Ladder by nosewheel yellow. White panels on drop tanks (Michael Bowyer).



## KVII RUSSIAN TANK

The long awaited Military Miniature of the Russian Heavy Tank KV-II. Gigant, as its name suggests, was a large tank standing over 13' high. First fitted with a 122 mm Howitzer, later replaced by a 155 mm Howitzer, this vehicle was successful as a siege weapon but was not very mobile. Kit contains super detail, Commander figure and realistic Decals.

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## KFZ 223 GERMAN SCOUT CAR

Another fine Armoured Car following on the popular 222. The widely used Sd Kfz 223 carried a medium range wireless set. This required a rectangular frame aerial mounted on four supports hinged to the body which could be lowered to reduce the silhouette. The kit reproduced this detail faithfully and comes complete with Commander figure and Decals.

## LEOPARD

The modern German Leopard is now available as a Military Miniature as well as in 2 motorised forms. The kit contains a Commander figure, very fine detail and superb Decals. The Leopard is the main competitor to the British Chieftain and both employ a similar gun of 105 mm calibre.





# SP 25 pdr Sexton in 1:76 scale

Another conversion from the Airfix Lee/Grant kit by **Joe Sauve**

IN 1942, IN response to British War Office and Canadian Army requirements, the Canadians developed a self-propelled gun combining the 25 pdr field gun and the Ram Cruiser tank chassis. A new upper hull was designed but kept simple with the vehicle retaining as many of the standard components as possible. Design was completed towards the end of 1942 with production starting in 1943 and extending until late 1945. 2,150 vehicles were produced, 124 as Sexton Is and the remainder as Sexton IIs. The first vehicles, the Sexton Is, can be easily identified externally by the absence of stowage boxes on the rear deck. Many of these, although built for the

Canadian order, were transferred to the British forces in early 1944 and saw service in Italy. The bulk of the vehicles produced were of the Sexton II type with the distinctive stowage boxes on the rear deck. These vehicles served with British, Canadian and Polish self-propelled field regiments in North West Europe during World War 2 and with the Canadian and British forces post-war. The British used them up until the mid-1950s. The vehicle is still in use in the Portuguese Army and possibly the Indian as well. In Italian service up until 1974 it became known as the Canone da 88/27 Semovente.

The Sexton II was a 28½-ton armoured

self-propelled vehicle mounting a QF 25 pdr 'C' Mk II or 'C' Mk III gun. The vehicle was 20 ft 1 in long, 8 ft 11 in wide and 8 ft high without its canvas top or 9 ft 5 in high with the top. Upper hull armour was ½ in on the sides and ¾ in in front. The Sexton carried a No 19 W/S Mk II or Mk III in a box at the left rear of the fighting compartment.

The Sexton II is the vehicle I will discuss for modelling in 1:76 scale. I used the Airfix Lee/Grant as a basic chassis but added the Sherman suspension assembly with trailing return rollers. I also used the Airfix 25 pdr field gun. That means using at least two kits and spares box material or three kits if you haven't got a good spares box. You could just use a Sherman hull but I find it hard to clean up the final drive housing and make it look like a three-piece nose should. You could get around this by doing a late Sexton II with the cast one-piece nose. Enough of this 'yeah, but' stuff and on with the modelling.

From the M3 Lee/Grant use the chassis entirely including the rear plate and the bottom section of part 50. Save the top section of part 50 and remove the driver's hatch — you'll need it. I find the best method of doing this is to file the piece from the rear until I can see through the plastic around the part I want to salvage, then to carefully cut out the good piece. This is also a great way to salvage filler caps from scrap deck plates. Also save the air cleaners, parts 60 and 61. You have a choice with part 56, save it and cut off the stowage boxes and trim it to fit the required rear deck or scrap it and salvage the filler caps. I suggest the latter since I chose the first and it's more work than scratch-building a rear deck. Save the bogie wheels, drive sprocket and rear idler also, they're better than the Sherman stuff. The rest of the kit goes into the spares box. Use whatever track you want, this beastie wore rubber block, steel chevron and rubber chevron. Although CDP track was also worn it requires a special drive sprocket, so unless you're ambitious stick to the available tracks and sprockets.

From the 25 pdr kit keep the barrel/recuperator parts 45 and 46, the cradle trunnion (47, 48, 49) and the handwheel (59). The actual cradle used was slightly different but since most of it is hidden on the final model, I assume that not many of you have the desire to be overly fanatical about this. Again all the rest goes into the spares box.

Now take some sheet plastic and cut away everything that doesn't look like a Sexton . . .

Well, maybe I should mention a few more things. Since this is an open vehicle you must now make the 'big decision' — do you or do you not detail the interior? While you're thinking about this start assembling the chassis. It's very therapeutic.

Now that you have decided to fully detail the interior, we can proceed (those of you who hadn't decided this are probably reading someone else's magazine, give it back to him). In order to avoid crushing the upper hull while fiddling inside you should build most of the interior before building the upper hull. Use the scaled drawings, the cutaway and stowage drawing for guidance from here on.

First construct the final drive housing and transmission. Both of these are cast pieces and should have a rounded appear-

ance. I constructed the transmission housing by glueing half a section of plastic straw on top of another section of plastic straw and producing the ridges by layering white glue over the unit in the desired pattern. The result is very realistic (and fast). Except for the transmission housing the rest is almost hidden.

Set this unit in place and glue into position, allowing for the slight tilt shown in the side view. Next, erect the rear wall of the fighting compartment but do not glue it in place. Using plastic rod (.66 mm approx) install the drive shaft running from the transmission back and through the rear plate noted above (drill a hole, of course). Note the inclined angle of the drive shaft shown in the side cutaway. Now the rear plate can be glued in position and the rear deck constructed and assembled. If you chose to scratch-build this you may want to try making the screen on the rear deck out of silkscreen (available at most arts supplies shops). It is very realistic in this scale. Omit the stowage boxes until later and build the deck flush with the outer edge of the vehicle sponson plates on the kit. I have included photos of the Sexton I because they show the rear deck shape very well.

The Sexton had ammo stored in bins

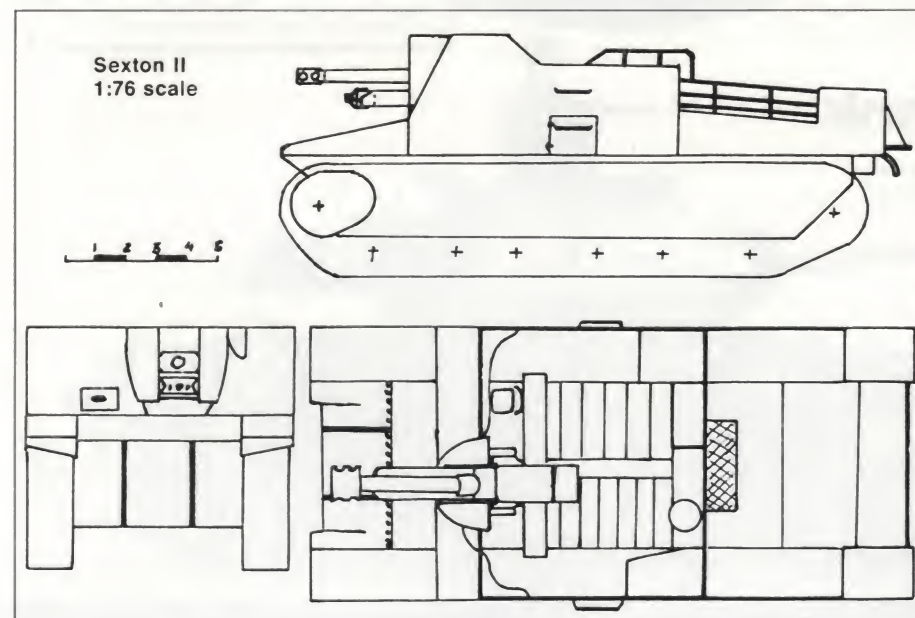
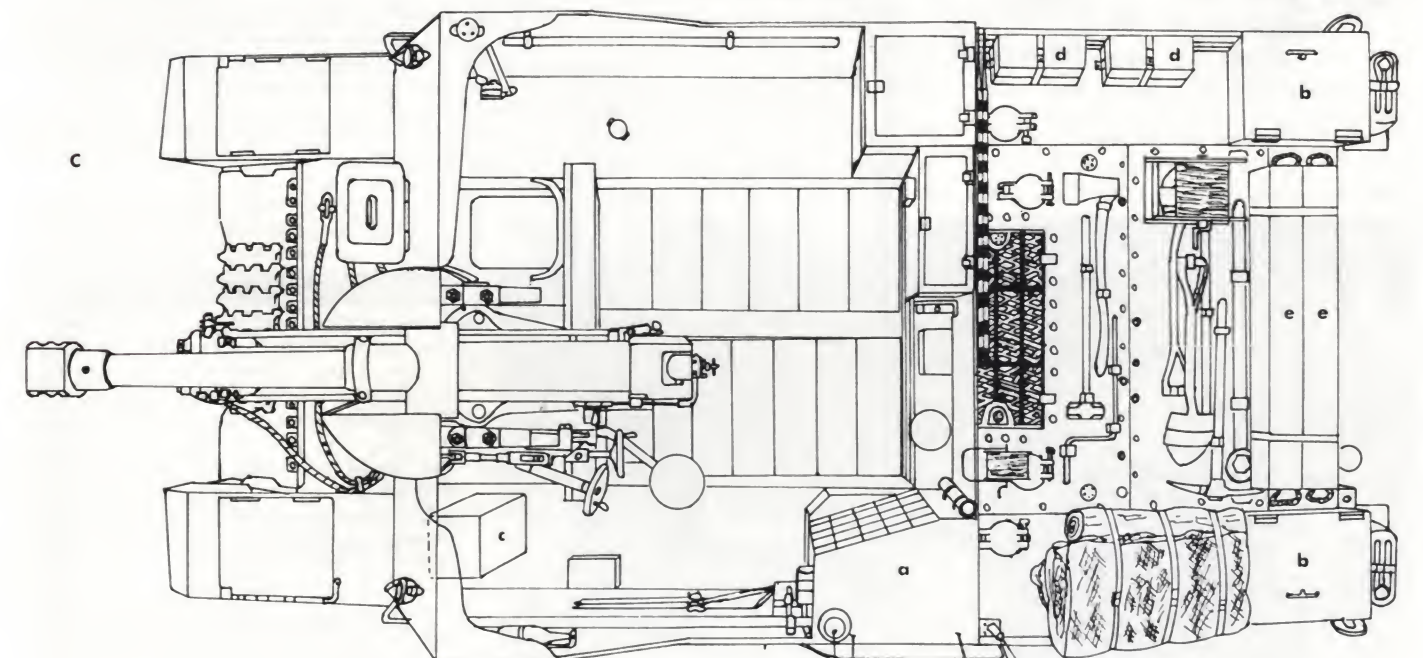
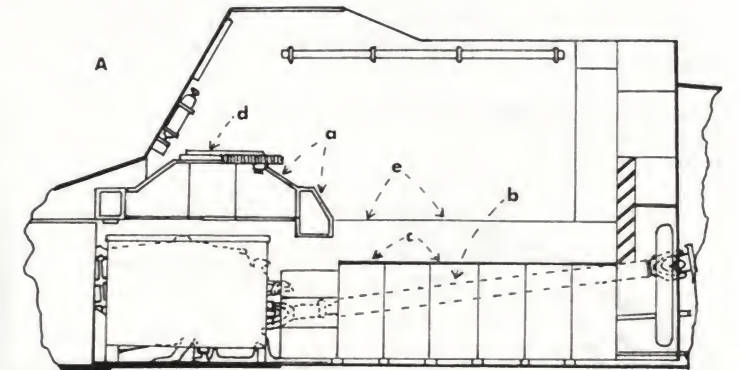


beneath the flooring of the fighting compartment (FC). This means that you will have to install a raised floor — note its position in the side cutaway. Note on the top view that this floor, consisting of individual rectangular plates, stops behind the gun bolster rear crossbeam. I found that the bridge decking from the Minitanks

range made good flooring. You can also make good (non-slip) floor plates by vacuum-forming 5 thou plastic over fine mesh screen.

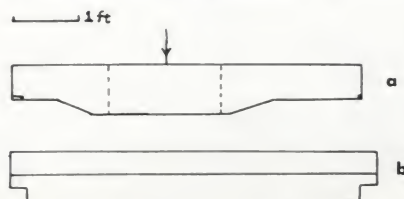
Now construct the crossbeams and bolster for the gun using the drawings provided as a guide. Make the crossbeams longer than needed and trim to fit. They should fit

**Facing page** Fine shot of a Sexton II in north-west Europe after D-Day (Peter Chamberlain). This is one of the many photos from Terry Gander and Peter Chamberlain's forthcoming book *Airfix Magazine Guide 17: British Tanks of World War 2*. **Above** Front view of a Sexton I in England in 1944 (Public Archives, Canada). **Right** Fighting compartment sectional side view looking right, Sexton II. **a** Bolster and crossbeams. **b** Drive shaft. **c** Ammo stowage raised floor level. **d** Gun mount sleeve. **e** Sponson level. **Below** Plan view of stowage on a Sexton II. **a** Radio box. **b** Rear deck stowage boxes. **c** Sten gun bin. **d** .303-inch ammo boxes. **e** Bren gun chests.





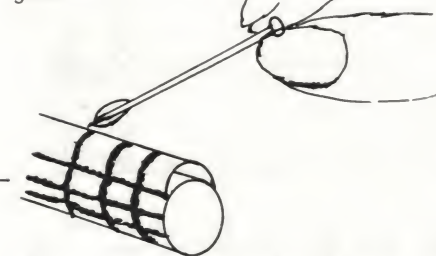
snugly between the sponson plates across the FC since they were welded in place. Be very careful about the positioning of the bolster, its centre mark where the gun pin-tle will rest must be on the gun centreline and not centred on the vehicle. The gun is offset to the left of centre. (Dimensions of interest: front crossbeam 63 in long, rear crossbeam 66 in long, bolster 20 in wide, gun mount sleeve 13 in outer diameter, and distance between crossbeams 33 in).



Crossbeams. **a** Front. **b** Rear. Dotted lines and arrow show location and centre mark of bolster.

I found it best to construct the entire assembly outside of the vehicle and fit it in later with the gun and shield in order to adjust overall appearance. In this scale, a silly millimetre can make the difference between a so-so and a good-looking model. Often also the exact location just doesn't look right and a minor alteration is needed to achieve a correct visual effect.

Making the transmission housing from plastic straws and white glue.



For the upper hull sides true scale requires the use of 6 thou plastic sheet. This is simply too thin to withstand any

Rear view of Sexton I CS-172760 in England, 1944 (Public Archives, Canada).



Side view of Sexton II S-234007 with CDP track and special drive sprocket (G. Bradford collection).

handling without warping, since the FC box has no side supports. I suggest 10 or 15 thou sheet and a bit of judicious cheating, bevel the top edge of the plates to make them appear thinner. Cut out two identical side pieces to match the full side profile of the upper hull, ie from front fenders to rear stowage boxes. This will produce a vehicle with good clean lines. Cut the front plates and assemble the upper hull, being especially careful with the front. Now complete the rear stowage boxes and let the entire assembly dry well before pro-

ceeding, since the handling will put pressure on the hull sides. Be careful to use glue very sparingly since any warping of these plates will be very noticeable.

Author's model of Sexton II on Airfix chassis and diorama base.



While waiting construct a seat for the driver, the ready round stowage bins, rear

Assemble the entire unit ready for fitting in the vehicle. Adjust the location or rebuild the elevating and traverse wheels and add a gunner's seat (see top view stowage).

Now you can assemble the final vehicle and add the finishing touches according to the stowage chart and your degree of patience.

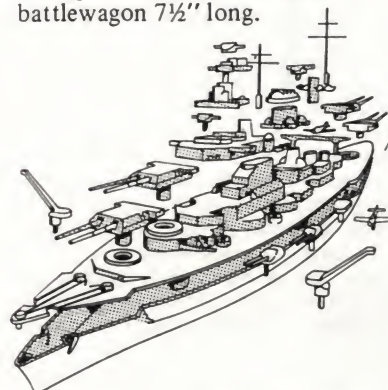
I'm going to avoid going into details about markings and let you find your own photos. I will say this though, most of the World War 2 Sextons I have seen had WD numbers on the sides, unit sign on the front right and formation sign on the front left. In Italy the AFV flash was carried on the sides and front and in NWE the Allied star was carried on the sides and final drive housing front. From that generalisation vehicles varied almost without bounds. The safest rule to use is this. Get a picture and model that vehicle. If you only have one view who can dispute the markings of the other views (except the crew and they probably can't remember anyway).

Note: Portions of this material were previously printed in RT, the magazine of IPMS/Canada. Canadian readers interested in joining the IPMS should write to Box 626, Station 'B', Ottawa. Subscription rates are \$5 in Canada or \$5.75 for foreign members, and these rates include a copy of the monthly magazine RT.

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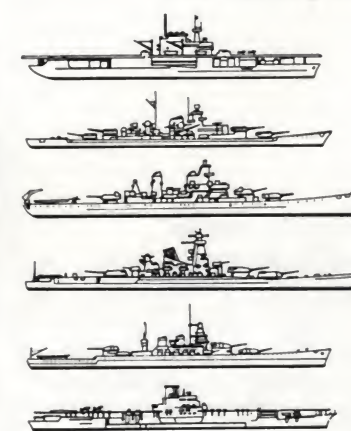
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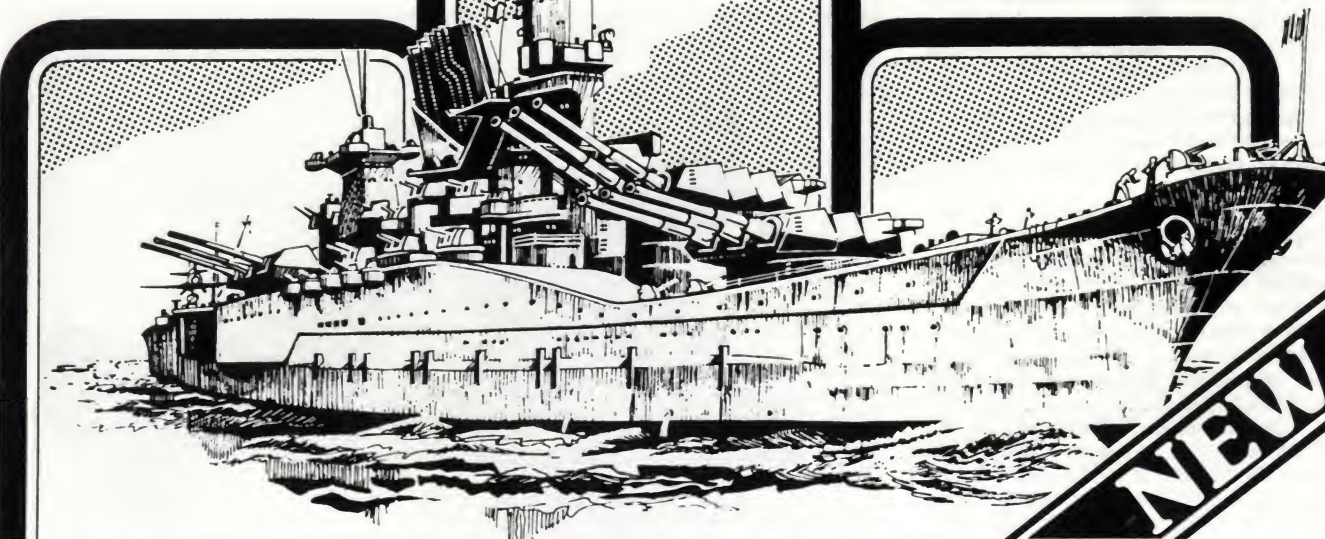


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# Shuttleworth Spitfire

## Modifying the Airfix kit by Keith Palmer

ON THE EVENING of Friday, June 27 1975, Neil Williams released the brakes and slowly opened the throttle and the Spitfire surged forward along Duxford's runway and leapt into the air, watched anxiously by a small group of people who had spent the last two years painstakingly rebuilding her.

33 years earlier AR501 had come off the production line, one of an order for 300 placed with Westland Aircraft Ltd of Yeovil. Completed as a Spitfire Vc, she was delivered to 310 (Czech) Squadron RAF at Exeter in July after passing through the hands of 8 MU. At one time she was flown by the CO, Squadron Leader F. Dolezal, DFC, and in June 1943 moved with the squadron to northern Scotland. In August 1943 she left 310 and during the next year passed through the hands of 504 Squadron, 312 (Czech) Squadron, 58 OTU and 61 OTU. After suffering damage she was rebuilt as a Spitfire LFVc with clipped wings and then served with the Central Gunnery School. On March 21 1946 she went to Loughborough Technical College as an instructional airframe. 15 years later she went on permanent loan to the Shuttleworth Collection.

Stored at Old Warden until 1968, she was then given the civil registration G-AWII and made airworthy in order to take part in the filming of *The Battle of Britain*. She then went back into storage until early in 1973 when she flew into Duxford inside a Canadian Armed Forces C-130 Hercules. A small group of aircraft engineers under Crew Chief Keith Taylor started a complete overhaul. The restored aircraft was displayed by Neil Williams in formation with Rolls-Royce's Spitfire XIV at the Duxford '75 display and at the Shuttleworth display on the weekend following its first flight. The same

Spitfire Vc AR501 at Old Warden, August 1975.

group have now started the restoration of Shuttleworth's Spitfire PRXI PL983.

She has been restored in the markings she is thought to have carried in December 1942 when she was flown by the CO of 310 Squadron. The individual aircraft letter is a guess based on the pilot's name. However when rebuilt in 1944 she acquired a number of features normally seen only on later production aircraft such as individual exhausts and enlarged balances. One reason for painting her in 310's markings was that the squadron was formed at Duxford in July 1940 although it had moved on

The author's completed model.



by the time AR501 was received. One other Spitfire is preserved in 310's markings — Spitfire IX TE565 coded NN-N is displayed in a museum in Prague and is one of the aircraft that returned with the squadron to Czechoslovakia in August 1945.

It is normally the Shuttleworth Collection's policy to fly only those historic aircraft which are sole survivors, or nearly so, of their types. An exception has been made with this Spitfire because of its popularity and it will be seen at air displays, especially those held at Old Warden and Duxford. Shuttleworth displays are held at Old Warden, Bedfordshire, on the last Sunday of each month from May to October and on Bank Holiday Mondays. I am sure that the Shuttleworth Collection would be glad to hear from anybody with photos or information on this aircraft, particularly if it relates to the first four years of her life.

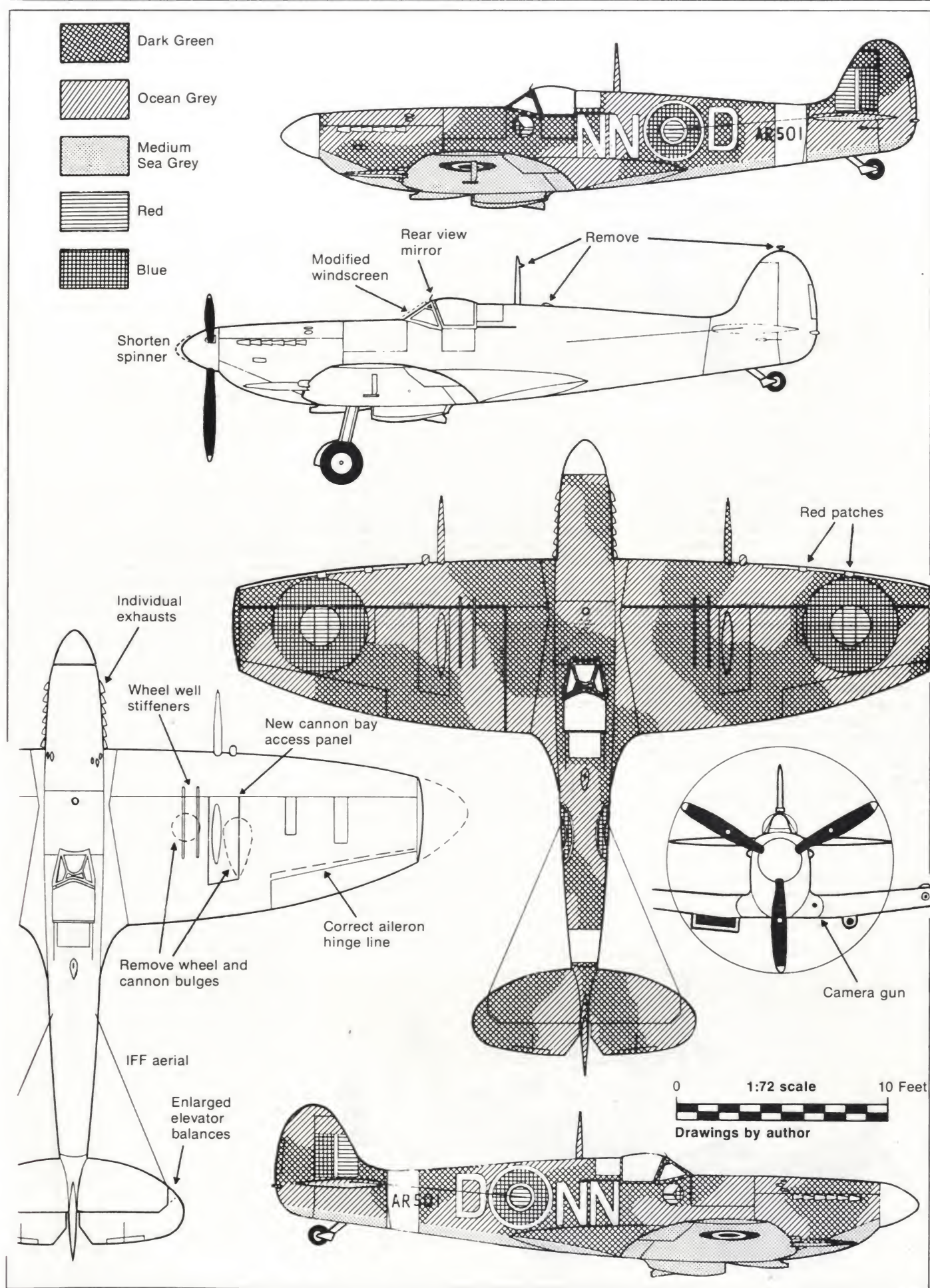
### Modifying the Airfix kit

The major part of the modifications are to the wings, particularly the clipped wing tips and the conversion from the B-type armament to the C-type. First file off the bulges over the cannons, both above and below the wings, and fill the resulting holes with body putty. Also file off the bulges over the wheel wells. Scribe the lines around the new cannon bay access panels and, using either plastic card or body putty, make the small bulges over the inner cannon bays. The stiffeners over the wheel wells can be made from stretched sprue. Cut the wingtips off leaving just over one millimetre beyond the end of the ailerons and shape with a file. In order to correct a fault in the kit the aileron hinge lines should be filled with body putty on the upper surface only and new lines scribed as shown on the drawing. The machine-gun ports in the leading edge should be filled and the stubs for the outer cannon bays stuck on — mine came from the heads of rockets in the Airfix Hunter kit.

The enlarged elevator balances on the tailplane should be made by filling the old lines with putty and scribing new ones as shown on the drawing.

The new exhausts can be made individually from plastic rod or, if you are lazy, you can use those included in the Matchbox kit of the Spitfire IX.

This machine is the only flyable Spitfire currently fitted with a three-bladed propeller.







Another view of AR501 in flight.

ler but it is not now fitted with the type with broad roots supplied in the kit. (A broad root propeller is known to have been fitted when it arrived at Loughborough. Today, however, Shuttleworth's Hurricane which came from the same place, has this type of propeller although it is not normally seen on Hurricanes. Perhaps the students put the propellers back on the wrong aircraft one day!) Either file down the kit propeller or use one from the spares box. The spinner should be made slightly shorter and blunter partly by carefully sanding the tip and partly by deepening the slots for the propeller and then trimming to the right length.

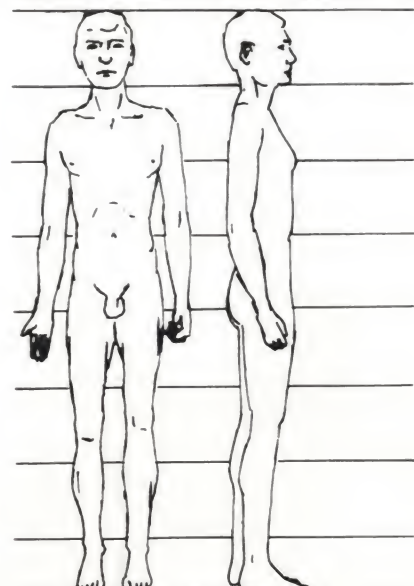
The windscreen is the later type with internal bullet-proof glass rather than the external type as supplied in the kit. This is best represented by carefully filing off the external glass, polishing the windscreen and giving it a thin coat of varnish after it has been stuck in position.

To complete the modifications the following small details should be carried out: remove formation light from fuselage behind radio mast; remove fittings for aerial wire on radio mast and rudder; add rear view mirror (rectangular type) to canopy; add IFF wires between fuselage and tail-plane; drill hole for camera gun in port wing root; the wheel hubs have a smooth

surface — use a disc of plastic card.

The colour scheme follows the practice in 1942 with Dark Green and Ocean Grey on the upper surface and Medium Sea Grey on the under surfaces. The camouflage pattern used by Westlands has been applied. Since it was based on the pattern produced by the Ministry of Aircraft Production it differed only in detail from those applied by other factories. The spinner, 24-inch high code letters and 18-inch wide band around the tail are Sky and the 8-inch high serials are in black. The individual code letter is repeated under the nose in black (about 6 inches high) and the propeller is black with 4-inch yellow tips and a small manufacturer's decal which can be represented by a small white dot. The wing leading edges are yellow from just outboard of the cannons to the tips, and there are patches over the machine-gun ports held in place with red dope. The engine exhausts are dull silver and there are inch wide black lines on the wings. Last but not least are the Czechoslovak national markings under the cockpit and these can be found on Dry Print sheet M12 but, unfortunately, they only print ones suitable for the starboard side of the fuselage. On the port side I put one on with the white segment in the correct position and then reversed the red and blue segments by overpainting. □

The model Spitfire with another Duxford conversion, P-51 'Big Beautiful Doll'.



Proportions of a man at 1:24 scale. Lines are at 10 mm intervals.

PLASTIC PADDING as a modelling material has never been fully exploited. Used as a filler perhaps, or as a moulding material (I once cast the blocks for a 1:24 scale Wolsley Viper engine from it), it has been around for years, but here I hope to give enough hints and advice to help you use it as a modelling material in its own right.

In case anybody doesn't know, Plastic Padding is a Swedish product, and comes in the form of a grey putty in a large tube, with a smaller tube of catalyst. When the two are mixed there are three stages in setting — first, the material goes slightly runny. It can be built up and modelled at this stage, although it tends to sag and run. This is not noticeable in small quantities so much as large. Secondly, it goes firm and rubbery. It can no longer be worked like putty at this stage, but cuts and carves easily enough for rough shaping. Thirdly, it gives off heat, and sets quite hard. At this stage, it can be cut, though with more difficulty, and will accept high detail. A word of warning, here. Don't try and file it at stage two, and keep it away from files when it's soft. When it has set hard, nothing will shift it from the teeth of a file, and Wood's Favourite File is now smooth and useless, because I found out the hard way.

There is another sort of Plastic Padding, Type Elastic, which stays slightly flexible and rubbery even when set. However, unless I say otherwise, throughout this article I will be referring to the hard type.

I wanted to make figures at 77 mm scale, and scratch-building was the only way. At 54 mm scale, almost anything can be made by chopping up the cheap and excellent Airfix figures, but nobody is ever going to persuade me to take a razor saw to a Series 77 figure. Obviously the choice of model you make will reflect your own interests. Here, I will be referring to three figures — Lord Nelson, a Landsknecht, and a Saxon warrior.

A variety of techniques are used, which you will be able to transfer to your own figures. Apart from Plastic Padding, polystyrene card, 5 and 10 thou thick, is used, as well as wire, paper, and the odd bit from

## Model figures in Plastic Padding

If you can't buy the figure you want, why not make it from scratch, as shown here by Ron Wood.

the spares box. Three types of adhesive are used, or four if you count the Plastic Padding itself. Mek Pak, for melting thin card into clothes, tube cement, and five minute epoxy, which sticks anything to anything most usefully.

### The armature

Each figure is built on a wire skeleton, or armature. Make this from florist's wire. A 10p pack from your local flower shop will last ages. The sketches show the proportions of a human figure at 1:24 scale, the scale we're working in, and keep referring to these as you work. I've got a fantastic set of drawings showing the muscles of the body, from the instruction book for a chest expander. Something of the sort would be useful to have about, especially if your figures are going to be tightly dressed, or partially unclad.

Double two lengths of wire, and then twist them together with pliers. This forms a double loop to support the head, and a thick plait for the body. Divide this to make the legs, but leave the legs long for the time being, as the more you have to hold, the better. A single wire, shoved through the body at shoulder level, will support the arms. Don't try and pose the figure yet. Of course you will know what the final position of the model is going to be, but the wire is too soft to hold its shape through too much handling. Leave the positioning of the arms and legs until you come to them individually.

### The head

Make the head first. Not only does it establish the character of the figure, but if

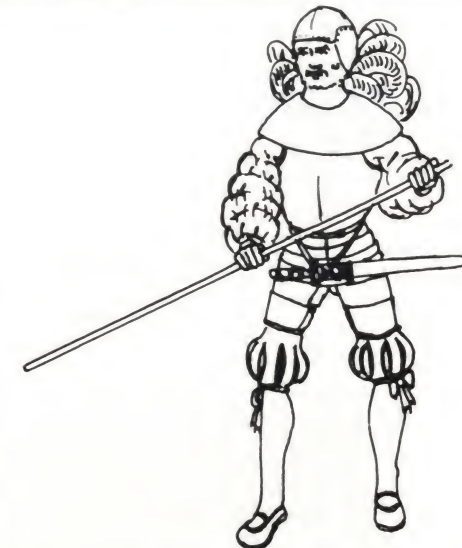
you can make a decent job of the face and head, you won't find the rest so difficult. Cover the armature head with a blob of Plastic Padding the size of the head. Keep it moving while it's still soft to stop it sagging, and put any surplus around the body, to start building up this, the thickest part of the figure. Next, apply a second coat, and work this, while still soft, and as it begins to set, into the features of the face. Don't forget, you can trim things down when they set hard, and add small bits like eyelids with wet Plastic Padding afterwards. Lips are best left until last, along with the eyelids. A needle is a useful tool for applying small quantities of the stuff, and a Number 1 Swann Morton blade, or similarly sharp-pointed modelling knife, is very good for carving the fine details.

Nelson was intended to be a portrait, and I used a postcard of his waxwork effigy in Westminster Abbey as a reference. I scrapped two whole faces before I managed to get a likeness. The Landsknecht has an open mouth, laughing, and I managed to get a set of top teeth in, using a very narrow crescent of 5 thou card, held in place with Mek Pak. Hair and beard are added after the rest of the head is made. Ears are often unnecessary. Nelson, although he had two, kept them under his hair, and the Landsknecht has his helmet over his.

### The body

Nelson's body was pretty shapeless — just a prop for the clothes, really, and the Landsknecht is wearing armour, which dictated the shape of his body pretty rigidly.

For a body which is the shape of the jacket covering it, like Nelson's, stick some

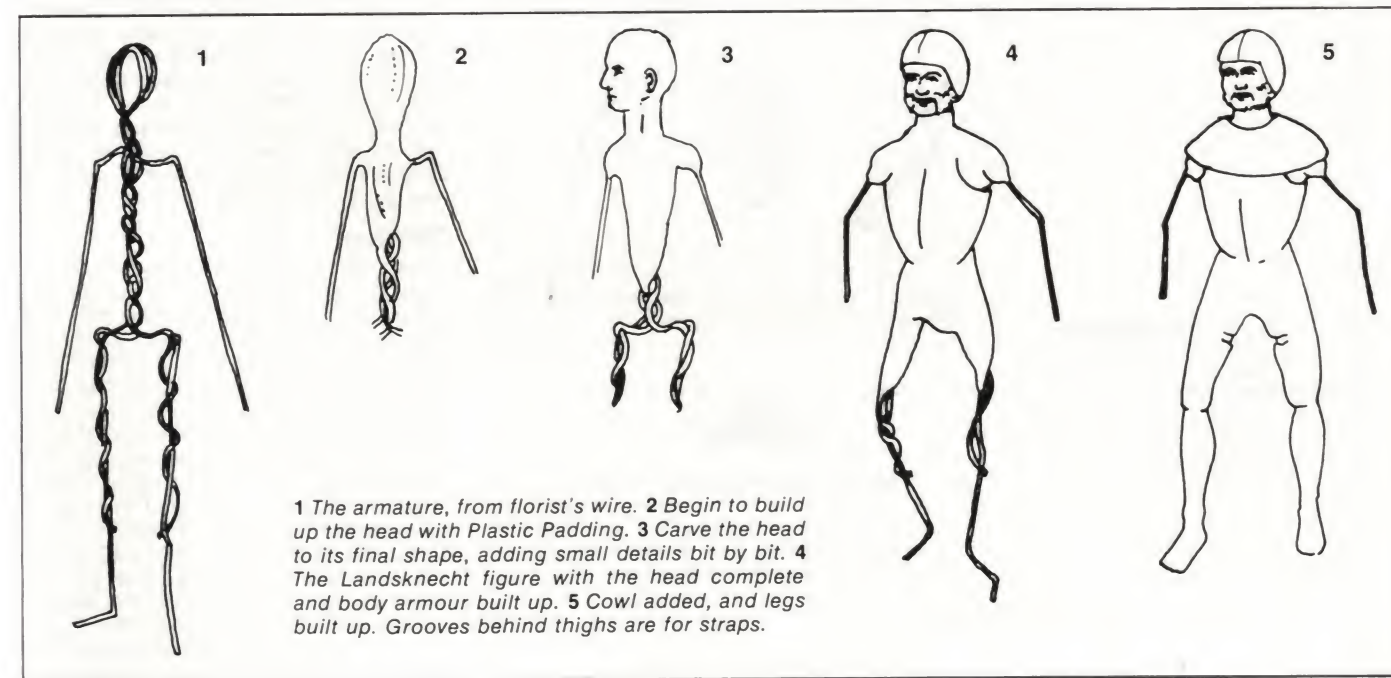


The finished Landsknecht figure.

pieces of plastic scrap to the body core with epoxy adhesive, to provide a key for the Padding, and stop it sagging. Then build up the shape with Plastic Padding, and carve it to shape when set. Detail like waistcoat, collar and buttons can either be carved on, in which case now is the time to do it, or made from thin card, in which case leave it till later. Nelson's waistcoat was carved at the top, and card at the bottom, and the buttons were stuck on.

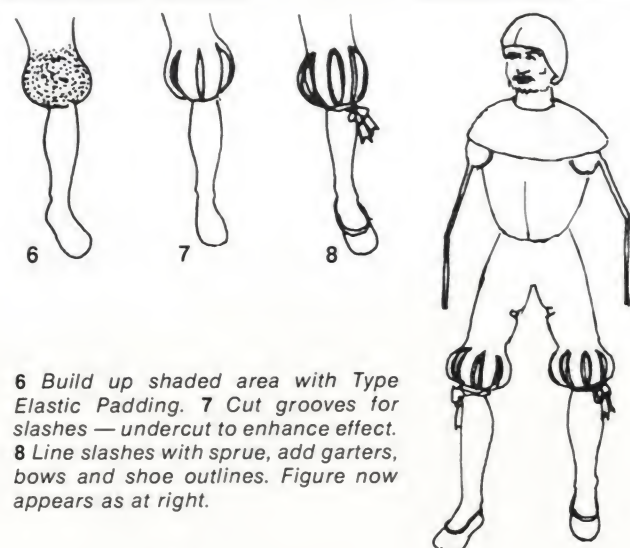
An armoured body is rather easier. Build up in the same way as an ordinary torso, but finish as smooth as possible. With wet and dry paper, a high degree of polish can be put on Plastic Padding. The mail cowl was added afterwards, textured with a needle when wet, and trimmed to final shape when still at the rubbery stage. The joint between breast and back plates was scored on both sides, and buckles from Historex spares were cemented in place on one side only.

To make a naked torso would entail a fair bit of modelling and carving. I've never tried.

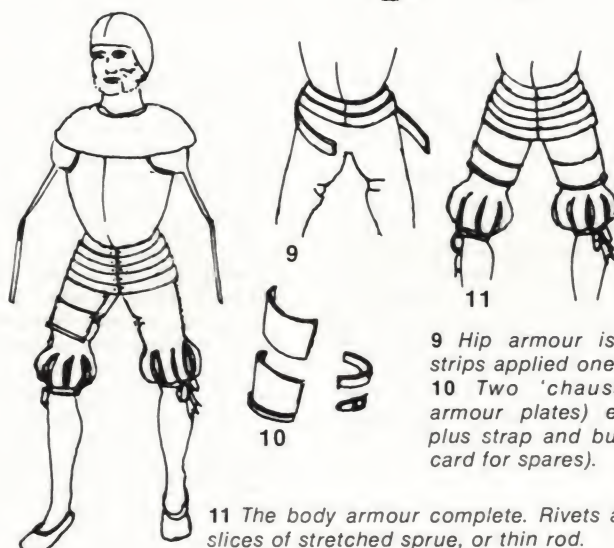


1 The armature, from florist's wire. 2 Begin to build up the head with Plastic Padding. 3 Carve the head to its final shape, adding small details bit by bit. 4 The Landsknecht figure with the head complete and body armour built up. 5 Cowl added, and legs built up. Grooves behind thighs are for straps.

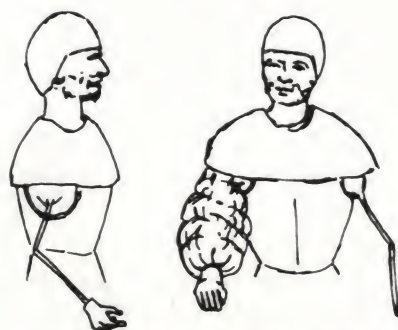




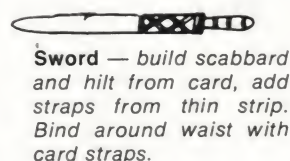
6 Build up shaded area with Type Elastic Padding. 7 Cut grooves for slashes — undercut to enhance effect. 8 Line slashes with sprue, add garters, bows and shoe outlines. Figure now appears as at right.



9 Hip armour is separate strips applied one at a time. 10 Two 'chausses' (leg armour plates) each side, plus strap and buckle from card for spares. 11 The body armour complete. Rivets are tiny slices of stretched sprue, or thin rod.



Drill out Airfix hand, and epoxy on to arm-wire. Then build up Plastic Padding sleeve, and carve afterwards into floured and gathered shape.



Sword — build scabbard and hilt from card, add straps from thin strip. Bind around waist with card straps.



Details Helmet plumes are 5 thou card cut to shape shown above. Cut tiny slashes, then tease out to resemble feathers. Cement about six to back of helmet edge.

The pike (left) can be up to 9 inches long — 18 feet to scale. Plastic rod and card.

### The arms

Build the arms up to the required thickness as far as the wrists. Hands will be made separately and stuck on. If the sleeve ends in an ordinary cuff, finish the arm short, then wrap a cuff of 5 thou card around the end. When this is cemented in place, and completely hard, sand down the joint and fill it if necessary.

The huge balloon sleeves of the Landsknecht are carved from solid Plastic Padding. The effect I was after was of fabric gathered and creased with ribbons, which were stretched sprue bound around afterwards.

Hands really are a problem. If the figures are truly at 1:24 scale, there is a short cut. The hands of the Airfix mounted figures, especially the Hussar and the Scots Grey, are oversize for 54 mm scale, but just about right for 77 mm. The fingers need separating and cleaning up a bit, but the Landsknecht has Airfix hands which fit him like a glove.

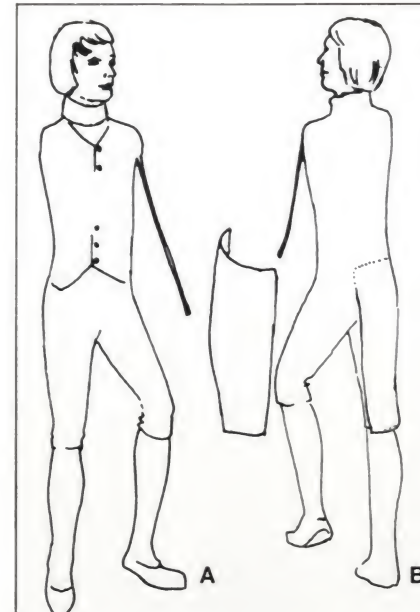
Lord Nelson, of course, only needed one hand, but as he is actually a little overscale, the spares box was no help. To make a hand, take four pieces of stretched sprue the right diameter for the fingers, and cement them together with tube cement, leaving them separate for the actual fingers. When they set, bend them with tweezers to the positions required, carefully, and referring to your own hands to get the positioning right. Then add a thumb from sprue, and when the whole hand is thoroughly dry, clean it up with your smallest file, and add the flesh of the palm and wrist with body putty or Plastic Padding. The hands can then be cemented into the sleeves.

### The legs

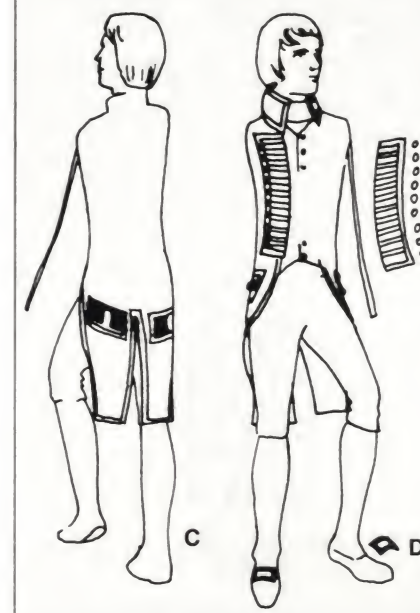
If you've got this far without mishap, the legs won't give you much trouble. Position the wires as you want them, and build up the thickness with Plastic Padding. Both Nelson and the Landsknecht wear stockings to the knee, so the legs are carved as if bare. Then Nelson's light breeches were modelled on, making a smooth joint with the lower trunk, and filing away the excess Plastic Padding where necessary. Incidentally, twice while I was doing this, I filed right through the wire at the figure's hip. This doesn't matter at all, as by the time the Padding has set, it's probably stronger than the wire anyway. The breeches of the Landsknecht are slashed, but I'll describe how this is done under clothing.

### Clothing

This will probably be familiar stuff to anybody who has converted 54 mm figures. 5 thou card, softened with Mek Pak, will take on most of the shapes needed for clothes. Only the lapels and tails of Nelson's coat had to be added, and these were cut to shape, cemented in place, and then brushed with Mek Pak. While they were soft, they could be bent and moulded into realistic positions. I've found paper is good for this, too. Take a piece of thin typing paper, and roll it up, then unroll it, and roll it again at right angles to the first roll. Do this a few times, and the paper just gives up and goes completely limp. In this state, it can be cut and folded almost like tissue, and used like the plastic card for clothing. The slashings on the Landsknecht's

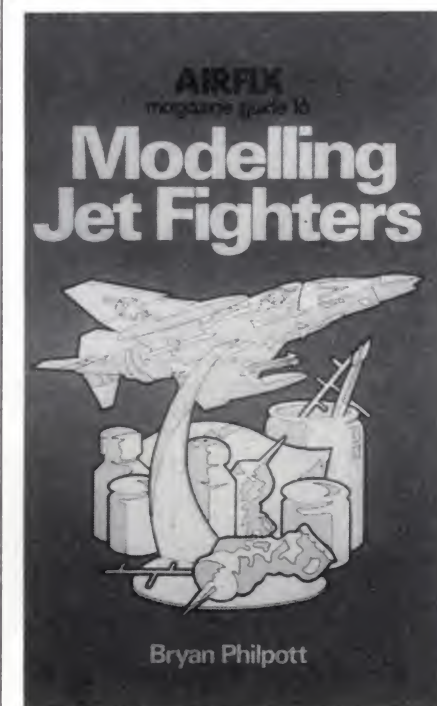


A Plastic Padding figure of Nelson, with the waistcoat detail carved on. B Coat tails are 5 thou card. Work out shape by trial and error with paper, then cement in place, and rub down joints. C Add frogging from narrow 5 thou strips. D Coat lapels and collar are more 5 thou card with added detail. Buttons are slices of sprue. Add shoe buckles.



breeches are a different technique altogether. Make the breeches fairly tight, ignoring the other, slashed covering. Just make the lining, so to speak, which will show through the slashings. When this is dry, use Flexible Plastic Padding to add a second layer, and build this out to the final outline of the breeches. When it sets, cut the slashings in with a sharp knife point, and undercut at the edges to give the impression of strips of cloth standing free. This works very well, exposing the hard Padding underneath, without damaging it. I outlined each slit with stretched sprue afterwards, which heightened the effect I was after.

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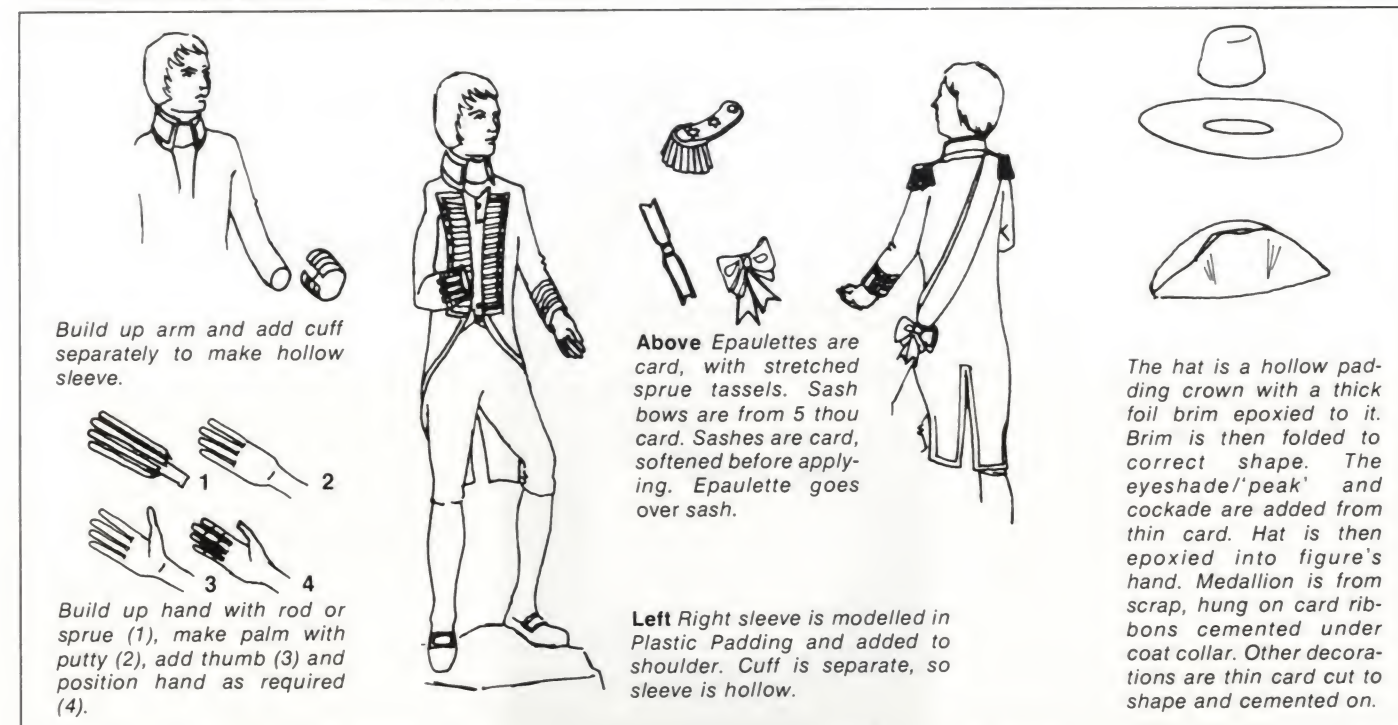
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# Armour

As I said before, the body armour was carved from Plastic Padding, and actually forms the figure's body. But the plates covering the hips and legs are 10 thou card. Cut each plate to shape separately, bend it to the required form, and cement in place. The left leg of the figure is incomplete in drawing 11, and you can see that it has just been filed smooth to take the armour plating.

I haven't said much about the Saxon warrior figure yet. This is mainly because most of the work done so far has been on his weapons and accoutrements and I've only completed his head.

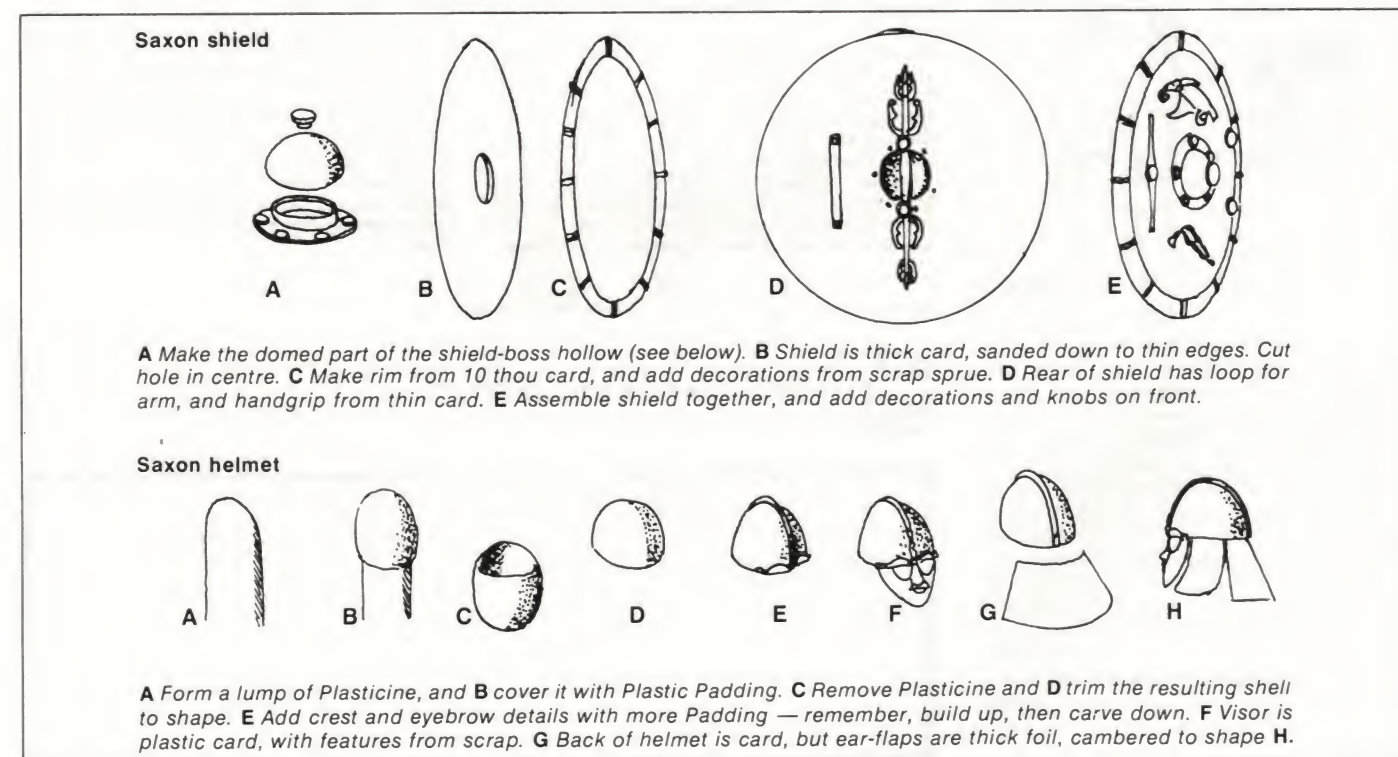
The equipment is based on the latest reconstructions of the armour from the Sutton Hoo ship burial in the British Museum. (I say latest, because the helmet, for example, is now a very different looking animal from the one formerly on display, and the shield has been completely revised.)

The dome of the helmet is hollow, and there is a fairly easy way of making this. Make a ball of Plasticine a little smaller than a head. Then cover it with Plastic Padding. When the helmet is finished, the Plasticine can be removed, leaving a hollow shell for the crown of the helmet. But the visor, neck-guard and ear flaps are

stuck on first. Thick tinfoil, the sort of stuff pie dishes are made from, can easily be cut to shape and epoxied in place, and raised detail can be scribed on from the reverse side with a pin.

Nelson's hat was foil, with a Plastic Padding crown, made as just described.

Swords, shield, and other weapons are built from plastic, but this will probably be familiar work to anybody who has done any figure modelling before. Other figure modelling techniques which can be adapted to use in conjunction with the Plastic Padding methods I have outlined, are amply detailed in PSL's book *Modelling Miniature Figures*, published last year.



# Super-detailing the Bugatti 35B

Noel Smith shows how to add even greater authenticity to the recent Airfix kit

THE BUGATTI 35B is a fine choice of classic car to model in 1:32 scale, the new Airfix kit doing the car great justice. There are a large number of parts in the basic model, but in this short article I hope to show how a little extra work and some scratch-building can produce an even more impressive and individual model.

The first step to take is to paint all the components while they are still attached to the sprue. Due to the fact that the parts are very finely detailed, I used an airbrush to spray them. This gives a good overall coat of solid colour thin enough to allow the detail to remain prominent. Modellers without an airbrush would be advised to

use thin coats of paint, allowing each coat to dry until the colour is built up to a point of opacity. The body and bonnet panels were sprayed in Racing Blue separately from the other pieces.

As I built the model with engine detail, it was necessary to remove the bonnet strap detail, which is moulded on each bonnet half, by careful scraping with a craft knife and rubbing down with wet and dry. Mind the louvres, though, while doing this. On the bonnet half which will be open, chamfer the edges to thin them down to a more correct scale appearance. When the model is completed, scratch-built bonnet straps may then be added. All work on the

bonnet halves should be done before painting, but if you decide not to bother with the engine and leave the bonnet permanently closed then, of course, you can leave the moulded strap detail and not bother about chamfering the edges.

After all painting has been completed and the components have dried, assembly can begin. Please note that the kit instructions do need to be followed very carefully as the kit is quite complex for its size.

The chassis, bulkhead and dashboard, plus pedals, etc. are all built as per the instructions, then the seat fitted. (Incidentally, I painted the seat matt black then went over it in black drawing ink, which gives a most realistic 'leather' appearance.)

The sump is next fitted to the chassis and allowed to set before any further handling. This is to make sure that the chassis assembly is as rigid as possible when fitting the body, which has to be eased over the chassis very carefully. In fact, the kit is so good that I found it unnecessary to cement the body, as it holds itself quite tightly on the chassis assembly.

Stage 3 in the instructions can be followed now, but ensure that part 21 does not foul the bottom panel (24) when fitted to bridge the differential. I had to take a section out of the centre of part 21 to allow the bottom panel to fit flush with the bottom of the body. Where the body is slightly tensioned over the chassis, a slight gap may also occur between the body and bottom panel on each side. Fine surface Polyfilla is a useful aid for this job and can be touched in afterwards with the main body colour.

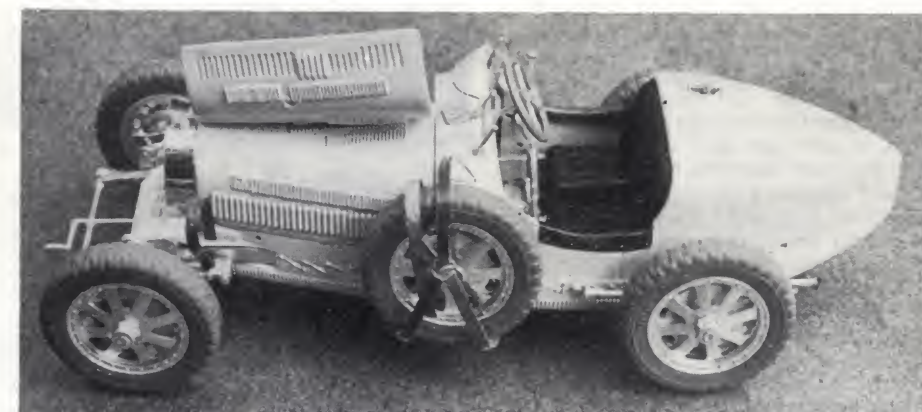
Before going any further, I built the engine from plastic card (see Figs 1 and 2) and fitted it. The wiring was done with fuse wire, and all the other details were constructed from oddments out of the spares box. Refer to the photographs to see how the manifolding, wiring, steering shaft and supercharger are positioned.

When stage 6 in the instructions is reached, it is necessary to decide whether the car is to be finished as the roadgoing or racing version. If you are building the racing version, leave off the headlamps.

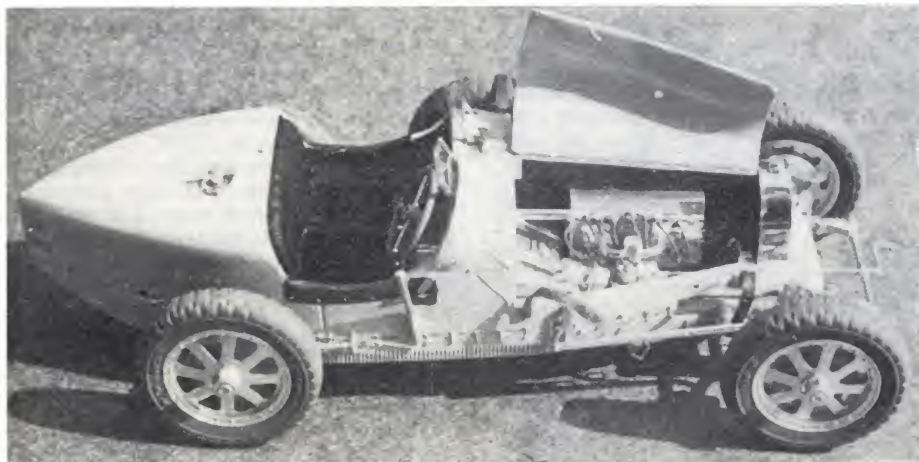
Before fitting the Bugatti radiator it is a simple matter to 'plate' it with chrome Sellotape or Metaltape (Fig 3). This highlights the radiator and offers a nice contrast to the sprayed silver chassis components and wheels. Epoxy the filler cap in place afterwards.



Top of page The real thing at speed! (Terence Brettell). Left and below Two views of the author's model (John Carter).

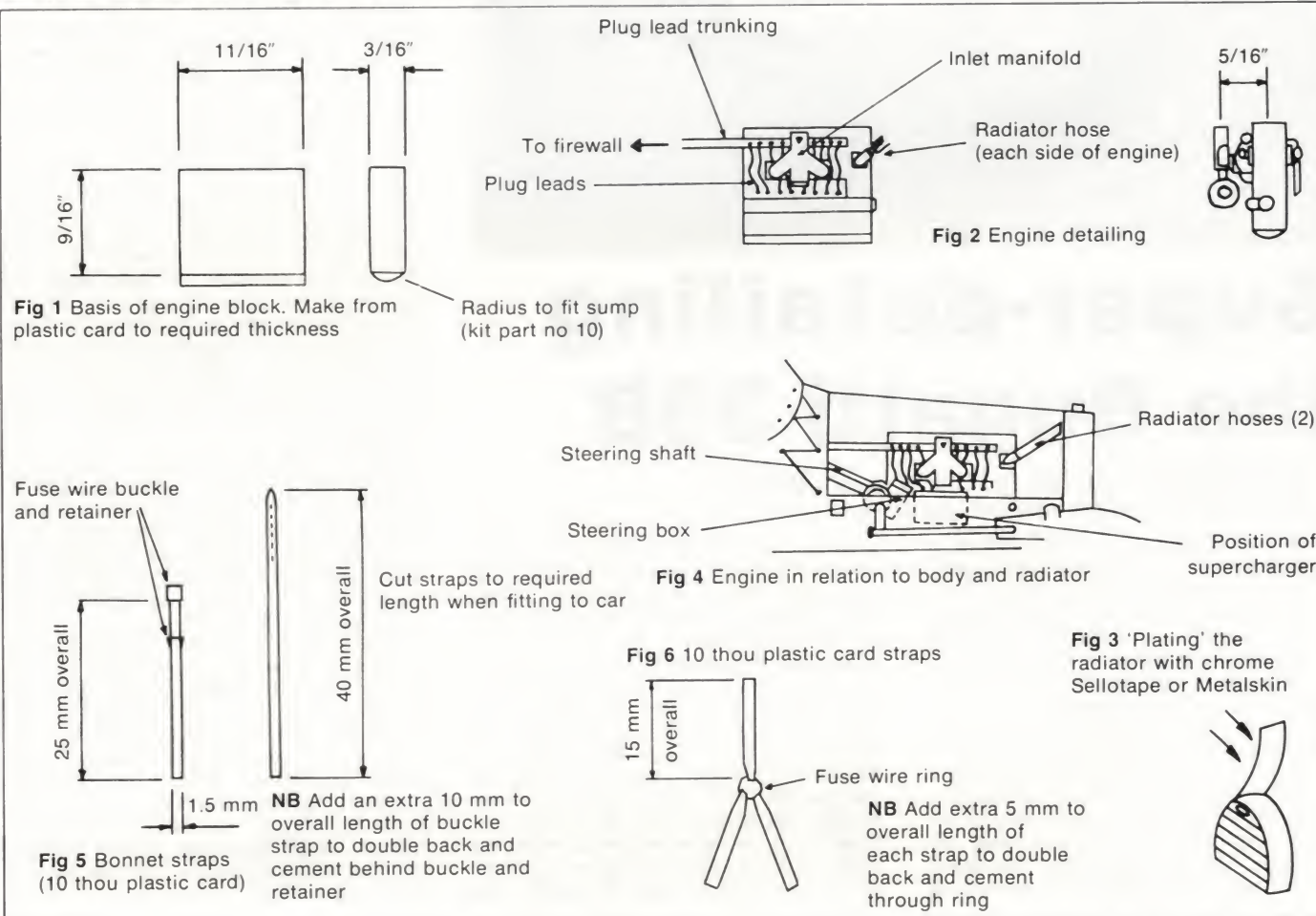






ting the number plates if the racing version is being built. During stage 10, only parts 93, 100 and 104 will be needed for the racing version (excluding the driver).

As finishing touches some strips of 10 thou plastic card 1½ mm wide will be required to make the bonnet straps (Fig 5) along with some thin fuse wire to form the buckles. Some of this strip will also be used for the spare wheel retaining strap, the centre ring being made from fuse wire again (Fig 6). Before applying the strips, paint them a light matt tan colour and, when dry, paint them over with brown drawing ink to obtain a leathery sheen. Locate and cement with liquid cement in the required positions on the car. Finally, add brake cables from stretched sprue and paint them silver. □



**Fig 1** Basis of engine block. Make from plastic card to required thickness

Radius to fit sump (kit part no 10)

**Fig 2** Engine detailing

**Fig 4** Engine in relation to body and radiator

**Fig 6** 10 thou plastic card straps

**Fig 3** 'Plating' the radiator with chrome Sellotape or Metaskin

**Fig 5** Bonnet straps (10 thou plastic card)

**NB** Add an extra 10 mm to overall length of buckle strap to double back and cement behind buckle and retainer

**NB** Add extra 5 mm to overall length of each strap to double back and cement through ring

Stage 7 should be completed according to instructions, leaving off the stays for all the mudguards if building the racing version.

The wheel assemblies are clever in that the tyre halves are fitted after the wheels are put together. To make an attractive contrast, paint the inner parts of the wheel halves in light grey and the outer parts silver. Pre-paint each tyre half in matt dark grey and when dry fit them to the wheel assemblies. Rub down the join with fine wet and dry and paint the tread part of the tyre in a slightly lighter matt grey than the tyre walls. This type of assembly has made the chore of painting the tyre colour around the wheel rim obsolete, fortunately.

Fit exhaust parts 71 and 72 for the racing version, then follow stage 9 through as per the instructions with the exception of fit-

**Top of page** Side view of the completed model with engine detail, etc (John Carter). **Below** Another view of the actual car in action (Terence Brettell).



## Squadron codes and colours 1939-56

By Michael J. F. Bowyer and John D. Rawlings

### NR 605 Squadron (c)

When 605 Squadron was re-formed as an Auxiliary squadron after World War 2 at Honiley it originally carried a Reserve Command coding but, on transfer to Fighter Command in 1950, was allotted the code combination 'NR' which it carried on its Vampire F 1s and FB 5s. Examples are Vampire F 1 NR:A-TG381, FB 5 NR:D-V2307.

### NS 52 Operational Training Unit (c)

No 52 OTU was a fighter OTU at Aston Down and one of the code letter combinations it used, mainly on Spitfires, was 'NS'. Examples are Spitfire IIB NS:Y-P8348, Martinet I NS:MS618.

### NS 201 Squadron (c)

This squadron used the combination 'ZM' on its Sunderlands for the first two years of the war, after which it flew aircraft (Sunderland IIIs) uncoded for a while. The combination 'NS' was assumed circa 1944 and used until 1951 when it was replaced by the single letter 'A'. Examples are Sunderland III NS:W-EJ150, V NS:A-VB881.

### NT 29 Operational Training Unit (c)

Throughout its existence this OTU flew mainly the Wellington and from at least 1942 used the code combination 'NT'. Examples are Wellington III NT:K-X 3812, X NT:R-LP434.

### NU 1382 (Transport) Conversion Unit (c)

This CU was formed in August 1945 at Wymeswold to provide transport crews for the Dakota squadrons and used 'NU' on its Dakotas until 1947. Examples are Dakota III NU:L-KG380, IV NU:G-KP251.

### NU 240 Operational Conversion Unit (c)

1382 (T)CU was renamed 240 OCU in 1947 and made its base at North Luffenham, then Dishforth. It flew Dakotas at first, later

Valettas, Devons and Ansons. In 1951 it was incorporated into 242 OCU. Examples are Dakota C 4 NU:Ä-KJ839, Valetta C 1 NU:T-VW807, Anson I NU:L-NK531, Devon C 1 NU:A-VP974.

### NV 79 Squadron (c)

One of Biggin Hill's permanent fighter squadrons on the outbreak of war in 1939, 79 Squadron changed its codes from 'AL' to 'NV' then and, apart from a period in India in 1942-43 when no codes were carried, it used this combination until it was disbanded at Meiktila on December 30 1945. Examples are Hurricane I NV:R-L1698, IIA NV:F-Z3156, IIC in Far East NV:N-KZ935, Thunderbolt II NV:S-KL174. □



**Above** The last operational maritime patrol of the European war was carried out by this 201 Squadron Sunderland III, NS:Z-ML779 (IWM). **Below** No 240 Operational Conversion Unit was the first unit to sport code letters on its Vickers Valetta C1s like NU:T-VW807 seen here at Farnborough in 1950.



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DELIVERY OF the Hotspur II with its clipped wings, modified canopy and rear fuselage entry door began when BT479 was sent to RAE on July 4 1941. Other early deliveries were of BT480 to CLE August 7 then BT483 on the 28th and BT482 on September 2. BT485, '487, 488-492 arrived at CLE in September. Some passed to the Exercise Unit whose tasks were tactical trials and demonstrations. The first Mk IIs for GTS Thame arrived in October beginning with BT498 on the 14th and including BT480, '493, '494, '495, '496, '497 and 499, the unit building to strength in November.

GTS Thame had been reforming with a Tug Towing Flight of 12 IE and four IR Hectors, one IE Hind(T) and two IE Tiger Moths. 'A' and 'B' Flights using Hotspurs each worked up to eight IE and seven IR Hotspurs. On October 22 actual strength was three Hinds, 12 Tiger Moths, 11 Hectors, two 504Ns, 18 sailplanes and eight Hotspurs. Six more Hotspurs allocated on October 13 needed assembling and troubles were being encountered with flying controls. To render training gliders even more conspicuous in the air it was decided on November 5 to paint the outer eight feet of each wing tip yellow on the upper surfaces, but apparently few ever had this feature although it was usual on prototypes in 1941-43.

Operational gliders being far off it was proposed to link two Hotspur fuselages thereby quickly producing a 16-seater. A prototype, MP486/G, was built but nothing came of the idea.

Glider needs of September 1941 called for 400 gliders to lift a Brigade. GTSs would expand to hold 162 Hotspurs, the Exercise

**Top of page** A typical scene at a Glider Training School in 1942. BT605:D is in the foreground. BT842:N landing with 2 GTS June 25 1942 - 1943 and with 3 GTS April 1945 - February 1946. BT596 is the other machine, which served successively with 2 GTS, 20 (P) AFU, 21 HGCU and 1 GTS (Flight International). **Below** BT600:I of 2 GTS being prepared for towing. The trailer in the foreground has the tow ropes aboard, each with a windsock to ease its fall to earth (Flight International).



Michael J. F. Bowyer

## Army-air colours 1937-45

### Part 10 — Continuing the Hotspur story

Unit 50. Wastage in training was reckoned to be about ten a month and the scheme allowed for one Hotspur for the training of three pilots, hence a total order now for 990 Hotspurs.

In November 1941 consideration was first given to producing an 'ideal' Hotspur training glider. Nose towing gear would replace the hook sited well back under the fuselage. This low sited hook limited tow speeds to 110 mph, for at higher speeds the glider would soar aloft. Dual controls were needed for tow release and flaps. ASI and altimeter needed to be duplicated, ailerons to be lightened, ventilation to be improved to reduce air sickness, better undercarriage jettisoning was needed, ballast weights were needed at troop stations and wheel brakes were desirable. Army Co-operation Command wanted 200 Hotspur IIs modified for continuous training. Operational tugs for Hotspurs could be the Stirling, Halifax or Lancaster, each towing three Hotspurs or the Warwick towing two. Usually the tugs were Hectors, Audaxes, Hinds or Whitleys.

By December 1941 No 1 Glider Training School had been established at Thame, its fleet being 16 Hectors and 30 Hotspurs. No 2 GTS was in being at Weston-on-the-Green with identical strength, both coming under Flying Training Command. Army Co-operation Command controlled two new units, No 101 (Glider) Operational Training Unit forming at Shellingford and due to move to Kidlington, and No 102(G)OTU forming Netheravon February 1 1942 and to move to Shobden when that was ready. Both were established with eight plus three Audax tugs and 30 gliders, but relied upon Hectors in reality. The

Exercise Squadron would move to Netheravon from Ringway in January 1942 taking similar equipment. This unit formed January 26 from Exercise Unit at a time when it was hoped to concentrate Audax tugs at Thame and use Hectors for operations.

Full operational load tests on the Hotspur had been completed at CLE by September 20 1941. Flying controls had been found heavy, especially the ailerons. The operational load was insufficient and the glider was not strong enough to allow towing speeds beyond 130 mph. Load tests had been carried out on BV199 and BT483. As an experiment, Lysander V9517 had been used as a tug, whilst BT480 had been used for Hector tug tests and BV134 modified into a fully fledged trainer. The question of tugs was not yet fully resolved. Audax K5152 showed a take-off run at 60 mph ASI with Hotspur BT544 to be 400 yards, some 820 yards being needed to clear 50 feet. With flaps up the glider landed at 69 mph, 56 mph with flaps down. Such results were obtained on BT500, BT483 and BT486. In May 1942 an Oxford was tested as a tug but its engines overheated too much. This was also true of Master II DL176 which took 510 yards to unstick and 900 yards to clear 50 feet. With runways and larger airfields this might be acceptable mainly because the Master II would be in plentiful supply. From late 1942 this type became the main Hotspur tug. In the meantime 30 Lysanders were made available, Mk III/IIAs being released for the purpose on June 22 1942. The standard 2½-inch manilla rope was suitable for 35 launches, the two-inch hemp rope for 30 launches.



It was a long time before ideas of glider trains and multiple tows died. A large tug towing a train of Hotspurs seemed a solution if the Horsa was unsuccessful. Wellington III X3206 could tow two or three, Stirling N3702 towed three and Halifax R9443 was tested with two and three Hotspurs. Shortening the Hotspur's landing run was attempted by fitting a gouging tool under the rear fuselage. This cutting device stabbed into the ground, reducing the run, but was only fitted experimentally at AFEE. In another attempt to shorten the landing run BT833 tested a drag chute at RAE in autumn 1942.

In March 1942 the Hotspur (T) became the Hotspur III, the ultimate trainer. Since all Hotspurs were now to be used for training it seemed logical that all should be fully converted at the rate of, it was hoped, about ten a week beginning April 1942 by which time 370 Hotspurs had been delivered. Although many production aircraft incorporated features of the trainer variant the conversion rate became slow for it was costly. Only 52 Mk IIIs were eventually produced.

By July 1942 production was rapid, Harris Lebus, the furniture makers, being most involved. On July 17 a census showed 321 Hotspurs in store to back the usual establishment of each GTS at 16 IE plus 14 IR. Training was now producing about 20 glider pilots a month and was rising to 50. A new training glider, eventually TX 3/43 was being planned, smaller and easier to build than the shapely Hotspur, to enter service in January 1944. Only two prototypes were ever built.

As late as November 1942, at which time Hotspur production was completed, the Army looked upon the machine as possibly having an operational role, as a supply aircraft. This discouraged the full implementation of a trainer conversion. In 1943 the trainer needs were established as wing strengthening, jettisonable pilots' canopy, aileron modifications, intercomm to the tug, additional tailplane incidence and 'Mod 172', the fitting of a bracing strut to the tailplane. Some Mk IIs embodied certain of these features.

Hotspurs were used as training gliders until the glider pilot training scheme ended in 1946. In 1948 those which had survived were put to the axe or the flame.

#### Notes on early tugs for Hotspurs

**Avro 504N** AX871 used at RAE; AX874 DU/CLE 11.8.40, RAE, 1 GTS 4.41-12.12.41; AX875 DU/CLE 11.8.40, 1 GTS 27.4.41 - 12.12.41; BK892 RAE 2.41, CLE 8.4.41 - 9.6.42.

**Hawker Audax** K2006 101 OTU 13.4.42 - 4 GTS 31.12.42 - 9.2.43; K3684 2 GTS 7.3.42, 4 GTS 27.7.42 - 11.12.42; K5120 4 GTS 1.8.42 - 13.3.43; K7328 2 GTS 24.7.42 - 4 GTS 23.8.42 - 20.3.43; K7331 102 OTU 17.4.42, 4 GTS 29.7.42 - 20.3.43; K7342 2 GTS 28.2.42, 4 GTS 25.8.42 - 24.12.42.

**Hawker Hind** K5421 2 GTS 7.12.41, 1 GTS 25.9.42, GIS 17.10.42, 4 GTS 31.1.43 - 20.3.43; K5450 2 GTS 17.12.41, 4 GTS 23.8.42, GIS Thame 5.10.42, 4 GTS 29.1.43 - 20.3.43; K5468 GPEU 12.8.42 - 4.9.42; K5511 GTS Thame 9.8.41, 1 GTS 29.7.42, 4 GTS 24.10.42 - 20.3.43; K5515 1 GTS 5.12.41 - 2 GTS 11.6.42, 4 GTS 1.9.42 - 20.3.43, 20 (P)AFU 20.3.43 - 6.5.43; K6685 1 GTS 28.2.42, 101 OTU 19.6.42, GIS 2.10.42 - 31.1.43.

**Hawker Hector** Used by 101 OTU: K8093, 8099, 8134, 8145, 8150, 8155, 8156, 8163, 9713, 9736-38, 9745, 9752, 9770, 9781. Exercise Unit: K8111, 8163, 9687, 9703, 9706, 9711, 9713, 9736, 9742, 9747, 9752, 9757, 9768, 9769, 9785. Thame GTS: K8119, 8122, 9126, 8132, 8137, 8145, 8146, 8167,

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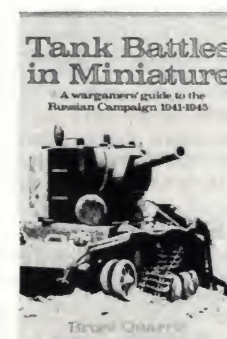
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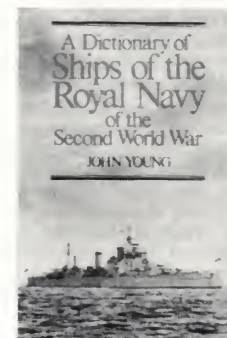
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A Hotspur II of the Glider Pilot Exercise Unit being towed off from Netheravon by a Whitley in October 1942 (IWM).

9687, 9716, 9723, 9734, 9750, 9751, 9762, 9765, 9767, 9771, 9773, 9774, 9775, 9782. Glider Pilot Exercise Unit: K8099, 8112, 8134, 8146, 8154, 9689, 9696, 9727, 9757, 9768, 9781. Airborne Forces Experimental Establishment: K8108, 8111, 8112, 8140, 8142, 9699, 9704, 9711, 9721, 9760, 9770, 9781. No 1 Glider Training School: K8111, 8140, 8143, 8152, 8161, 8164, 8166, 8167, 9687, 9716, 9735, 9744, 9772. No 2 Glider Training School: K8108, 8111, 8126, 8134, 8140, 8142, 8146, 9703, 9713, 9764, 9785. No 4 Glider Training School: K8122, 8123, 8135, 8142, 8150, 8151, 8152, 8156, 8157, 8158, 8161, 8162, 8163, 8164, 8166, 8167, 9706, 9711, 9713, 9729, 9734, 9735, 9736, 9743, 9744, 9745, 9752, 9756, 9764, 9767, 9771, 9774, 9780. No 5 Glider Training School: K8166, 9743, 296 Squadron: K8112, 8134, 8146, 8154, 9696, 9711, 9740, 9746, 9757, 9768, 9769, 9770, 9786. Central Landing Establishment: K8126, 8137, 9711, 9755, 9768, 9771. Glider Instructors' School: K8142, 9734, 9773. No 102 OTU: K8151, 8157, 8158, 8161, 8166, 9703, 9706, 9711, 9742, 9743, 9747, 9752, 9780.

## Hotspur production

**Mk I** Slingsby built BV134-140, BV146-151; GAL built BV190-199 (BV199 converted to Mk II prototype).  
**Mk II** Built by Lebus, Wm Lawrence & Co, Mulliners and Waring and Gillow. HH prefix: HH109-153, 167-198, 223-268, 284-333, 346-388, 401-431, 445-493, 517-566, 579-623, 634-674, 688-732, 751-800, 821-853, 878-919.

Known conversions to full Mk III standard: BT540, 566, 602, 632, 663, 735, 747, 751, 777, 784, 823, 895, 917, 946; HH143, 175, 180, 190, 228, 231, 261, 294, 323, 326, 330, 373, 518, 526, 529, 536, 555, 565, 610, 691, 694, 698, 704, 723, 724, 754, 767, 774-776, 781, 783, 784, 786, 789, 835, 838, 888.

## Glider Training Schools — outline notes

Glider Training Squadron/School, later No 1 Glider Training School.

January 1941 arrived Thame. First Hotspur arrived 6.4.41 (BV125). Became No 1 Glider Training School December 1941. Between 9.3.42 and 25.7.42 used Kingston Bagpuize as its satellite airfield. Moved to Croughton 1.8.42 taking 14 Hectors and 18 Hotspurs. First Master IIs arrived in August 1942.

Became No 20 (Pilot) Advanced Flying Unit using Oxfords 24.3.43. Reformed as No 1 GTS at Groughton 16.10.44 flying Master II and Hotspurs. Disbanded 19.6.46.

### No 2 Glider Training School

Formed 4.12.41 at Weston-on-the-Green using Hector/Hotspur, also used Audax and later Master II as tugs. 3.2.43 - 20.3.43 maintained a detachment at Cheddington. 6.4.43 became absorbed into No 20 (P) AFU, and switched to flying Oxfords.

### No 3 Glider Training School

Formed 21.7.42 at Sroke Orchard (Master II and Hotspur). Had detachments later operating variously from Northleach, Aldermaston, Wanborough, Zeals, Culmhead. To Exeter 16.1.45 using Culmhead as Reserve Landing Ground (RLG). At this time made use also of Albemarle and Horsa gliders. To Gaydon 24.7.45, disbanded

3.12.47. Many Hotspurs of unit later stored at Wellesbourne Mountford and burnt there.

### No 4 Glider Training School

13.7.42 formed at Kidlington from No 101 (Glider) OTU. Absorbed into No 20 (P) AFU in 4.43.

### No 5 Glider Training School

Formed Kidlington 30.6.42. To Shobden 30.7.42, and used Lysanders and later Master II as tugs for Hotspurs. Known to have used Hockley

Heath RLG in 7.44. Disbanded 30.11.45.

### No 101 (Glider) Operational Training Unit

Formed Kidlington 1.1.42 (RLG Barford St. John). 6.42 using RLG at Kidlington (alias Glympton) for Hectors, Hinds, Audaxes and Hotspurs. Became No 4 GTS 13.7.42.

### No 102 (Glider) Operational Training Unit

Formed Kidlington 10.2.42 using Hectors and Hotspurs, later used Hinds, Audaxes and Lysanders. Became part of 4 GTS on 13.7.42.



**Above** Hotspur II BT605 with 'D' on the nose in Sky, of 2 GTS in June 1942. Note the lengthened skid, whereas BT595:U of No 102 OTU has a tail skid (Flight International).  
**Below** BT615:J of 2 OTU landing at Weston-on-the-Green in June 1942. This machine has a tail skid (Flight International).



## Weights and dimensions

	Wingspan	Length	Height	Loaded weight
<b>Mk I</b>	61 ft 10¾ in	39 ft 3½ in	10 ft 10 in	3450 lb
<b>Mk II</b>	45 ft 10¾ in	39 ft 3½ in	10 ft 10 in	3598 lb
<b>Mk III</b>	45 ft 10¾ in	39 ft 8¾ in	10 ft 10 in	3635 lb
<b>Twin</b>	57 ft 11 in	39 ft 3½ in	10 ft 10 in	6550 lb
<b>TX3/43</b>	35 ft 1½ in	25 ft 6½ in	—	2350 lb



Glider Instructors School  
 Formed Thame 20.8.42, disbanded 31.1.43.  
 Used Hind, Hotspur, Hector.

## Examples of Hotspurs used by various units

Royal Aircraft Establishment, Farnborough: BT479 (4.7.41 - 13.6.42), BT552 (7.8.42 - 31.12.42), BV149 (2.12.41 - 27.4.42).

Used for maker's trials by General Aircraft Ltd: BT486, BT535 (12.41 - 1945), BV190, BV200.

Central Landing Establishment: BT480 (7.8.41 - 23.9.41), BV196 (31.7.41 - 1.11.41).

Airborne Forces Experimental Establishment: BT500 (18.10.41 - 22.11.41), BV139 (10.12.41 - 27.4.42), BT501 (27.3.42 - 11.12.42), BV200 (7.6.42 - 10.2.45).

Exercise Unit: BT484 (30.9.41 - 1.42).

Glider Pilot Exercise Unit: BT492 (12.8.42 - 1.9.42).

296 Squadron: BT482 (25.4.42 - 28.4.42), BT564 (20.3.42 - 12.6.42), BT565 (26.2.42 - 1.7.42).

No 20(P) Advanced Flying Unit: BT596 (30.4.45 - 1.6.45), HH420 (15.10.44 - 1.6.45).

No 21 Heavy Glider Conversion Unit: BT507 (1.6.45 - 25.11.45), BT574 (1.6.45 - 7.5.46).

No 22 Heavy Glider Conversion Unit: HH455:U.

No 1 GTS: BV135 (18.5.41 - 13.12.41), BV198 (6.8.41 - 7.1.42), BT487 (3.3.42 - 30.7.42), BT497 (9.2.42 - 25.1.43).

No 2 GTS: BT498 (16.11.42 - 7.2.43), BT539 (27.1.42 - 20.8.42).

No 3 GTS: BT603 (12.10.42 - 4.43), BT487 (5.9.45 - 16.11.45).

No 4 GTS: BT496 (10.10.42 - 4.43).

No 5 GTS: BT537 (19.10.42 - 13.9.44), BT512 (2.12.44 - 4.2.45).

## Glider tugs used for experimental work at RAE

Master II DL308, EM258. Whitley V N1348, BD504, Z9390 (multiple towing), BD530 (multiple towing).

## Westland Lysanders used for glider towing, and their operators

V9286 — 296 Sqn 25.6.42, to 102 GOTU 7.7.42, 5 GTS 31.12.42 - 26.7.43.

V9291 — 102 OTU 17.6.42 - 14.11.42, 5 GTS 10.2.43 - 23.9.43.

V9293 — 102 OTU 16.6.42 - 7, 5 GTS 31.12.42 - 25.8.43.

V9316 — 296 Sqn 24.6.42 - 102 OTU 22.6.42 - 5 GTS 31.12.42 - 23.6.43.

V9373 — 102 OTU 2.7.42 - 16.9.42, 5 GTS 17.10.42 - 23.7.43.

V9376 — 102 OTU 16.6.42 - 26.9.42, 5 GTS 14.4.43 - 3.7.43.

V9382 — 296 Sqn 24.6.42 - 102 OTU 22.6.42 - 5 GTS 31.12.42 - 12.8.43.

V9426 — 102 OTU 17.6.42 - 5 GTS 31.12.42 - 9.10.43.

V9447 — 296 Sqn 31.5.42 - 102 OTU 16.6.42 - 5 GTS 8.8.42 - 16.8.43.

V9482 — 296 Sqn 25.4.42 - 102 OTU 17.7.42 - 5 GTS 16.7.42 - 11.7.43.

V9503 — 296 Sqn 31.5.42 - 5 GTS 22.8.42 - 12.1.44.

V9516 — CLE 13.6.41 - AFEE 18.12.41 - 27.12.41, 10.1.42 - 5 GTS 14.1.43 - 13.4.43.

V9578 — 296 Sqn 31.5.42 - 102 OTU 18.6.42 - 5 GTS 31.12.42 - 11.3.43.

V9579 — 296 Sqn 3.6.42 - 102 OTU 18.6.42 - 5 GTS 4.9.42 - 26.7.43.

V9586 — 296 Sqn 24.6.42 - 5 GTS 22.8.42 - 21.10.42.

V9591 — 296 Sqn 31.5.42 - 102 OTU 2.7.42 - 13.9.43.

V9675 — 296 Sqn 31.5.42 - 102 OTU 2.7.42 - 5 GTS 9.2.43 - 27.8.43.

V9679 — 296 Sqn 24.6.42 - 102 OTU 7.7.42 - 1.10.42, 5 GTS 9.2.43 - 27.8.43.

V9704 — 296 Sqn 24.6.42 - 102 OTU 7.7.42 - 7, 5 GTS - 7 - 26.7.43.

V9720 — 102 OTU 24.6.42 - 102 OTU 7.7.42 - 26.9.42, 5 GTS 23.1.43 - 12.8.43.

V9722 — 296 Sqn 31.5.42 - 102 OTU 17.7.42, 5 GTS 16.7.42 - RAE 15.2.44 - SOC 11.1.45.

V9726 — 102 OTU 14.7.42 - 5 GTS 1.8.42 - 4.9.42, 17.10.42 - 29.1.44.

Although withdrawn from service early 1943 many Lysanders were held on their units and struck off charge circa July-August 1943. □

# NEW KITS AND MODELS

## Heller Alpha Jets

WE HAVE RECENTLY received some review samples from the French company Heller, who have been rather quiet of late but who have now leaped forward with a host of new releases, including aircraft, ships and two new lines of AFVs and figures in 1:35 and 1:72 scales, several of which we shall be reviewing shortly.

Taking their Alpha Jets first, there are two of these: a 'mini' version for younger modellers in their 1:100 scale 'Cadet' range, and a larger version in 1:50 scale. Prices in the UK are not definitely known at the time of going to press, but Beatties, the distributors, informed us that that of the 1:50 scale kit would be approximately £1.62.

To take the smaller scale model first, we found this a pleasant kit, very free from flash and well moulded. The canopy needed a little filing to fit flush with the line of the nose, and the locating holes and slots were overlarge, making it difficult to get the correct anhedral on the tailplane. The nose antenna is flimsy and would not last long unless great care is taken, but overall a good beginner's or junior modeller's kit.

The 1:50 scale model, while containing much more detail, seemed designed to be awkward to assemble. The moulding detail is good and free from flash but some of the locating points didn't quite seem to match up. Definitely not a model for a beginner. Parts are included for both the French and German versions of this aircraft. Both kits contain French and German decals to choice. We couldn't help wishing that optional aircrew could have been provided, but this is just a personal fad. Instruction sheets are very basic but adequate and reasonably well illustrated, although it could be irritating for the non-French speaker to have to keep diving back to the English parts list. In both cases, the finished product 'looks' right; our personal preference is for the smaller one.

Revell's racing Datsun in 1:25 scale.



## Matchbox Surtees TS16/03

THE SURTEES TS16 is a logical subject for a car kit in the Matchbox range, since they sponsor it in Formula 1 racing. The model depicts the 1974-5 car which was dogged by misfortune, but is a very accurate model — as it should be as the manufacturers had ready access to the real car!

There are two main body colours — why do Matchbox persevere with this childish gimmick? — red, and black, which were the car's colours when it was sponsored by Bang & Olufsen. This will mean some careful painting if you want to depict the car in its Matchbox colours of blue and yellow. B&O decals are also provided. Wheels and suspension components, etc, are chrome plated, while a clear windscreen and vinyl tyres are also included.

Generally speaking, the mouldings are very crisp with virtually no flash, and as most of the engine is exposed this should please the super-detailers wanting to add extras. All in all an interesting addition to an increasing range, particularly as there are so few Formula 1 cars in 1:32 scale.

## Revell Datsun 240Z

THIS LATEST Revell offering can be built in either of two options — standard road version or BRE race-prepared SCCA champion. The quality of the mouldings is good, but they are prone to flash which will need tidying up during construction.

This kit has a one-piece body with opening bonnet and detailed engine. Clear windscreens are provided, and vinyl tyres made up in halves. There is not much by way of chrome accessories which makes a change for a kit of this type. Revell also supply some plastic tubing for the air lines under the bonnet. If additional scratch-built detail could be added, it would make the engine compartment of this car kit very impressive indeed.

A full set of BRE racing decals and a clear, easy to follow instruction leaflet are included, the latter naming as well as numbering each part, which is of great educational value.





All the main kit mouldings are in white plastic which gives good scope for a variety of colour schemes with no need for undercoating. To summarise, a good reproduction of a very interesting car which should please most modern sports car enthusiasts.

### Revell F-15 Eagle

REVELL WERE the first manufacturer to include an F-15 in their 1:72 scale range and they now become the first to up-date their kit to the latest configuration. It is Revell's policy to up-date kits and/or re-issue some of their earlier offerings but this must take the record for speed in revising an existing product!

The mouldings are basically as before but the wing-tip shapes have been changed and underwing stores increased. The model can be finished as the air superiority version of the Eagle or as it appears in the fighter/bomber role.

One engine can be removed for display in the same way that it could on the original kit but this is the only gimmickery that Revell have allowed themselves.

Mouldings are crisp and neat and the review sample was remarkably free of the usual Revell trade mark: flash.

Underwing stores now include four Sparrow and four Sidewinder missiles, as well as two multiple-ejector bomb racks complete with 12 Mark 82 bombs. Decals for both versions are included and the comprehensive instruction sheet includes full colour schemes.

This is a good kit of the Eagle and it is nice to see a manufacturer taking the trouble to up-date one of his earlier kits so quickly, let's hope that modellers show their appreciation of this attention to detail.

### Monogram F-16

THE CONTROVERSY which surrounded the F-16 when it won the Eurofighter competition against the Mirage and Viggen last year put this lightweight fighter/attack aircraft well and truly in the limelight of the aviation press, and it was only a question of time as to whom would be the first with a kit of this unusual-looking machine.

Monogram proved to be the winner in the miniature stakes and their 1:48 scale version of the F-16 was the first to hit the dealers' shelves. There are, of course, many modellers who deprecate the early release of any combat aircraft, their argument being that it is best to wait until the final version reaches the squadrons, but on the other side of the coin, release of prototypes and development aircraft does enable the avid collector to gather a truly representative collection of such aircraft in every stage of its development without the need of undertaking lengthy conversions. At the present time it is not known just how

much the definitive version of the F-16 will vary from those models now flying, but at least the Monogram kit does enable a start to be made in adding this important aircraft to miniature air forces.

Naturally, being a Monogram kit, there is no need to pass any comment about quality since this seems to be this particular manufacturer's forte. The kit is moulded in finely detailed white plastic and is fairly unusual in that not only is the fuselage split along its horizontal axis but also has both top and bottom wing halves moulded as integral parts of the fuselage. Goodbye filler!

The model scales out accurately against details published so far and every part clips together with the ease that one comes to expect from a Monogram kit. The canopy is a beautiful example of clear moulding and enables the comprehensive cockpit interior to be seen with ease.

The two F-15 variants which can be built from the Revell kit.

A considerable amount of attention has been paid to undercarriage struts, wheels, wheel wells, tanks and missiles, and for those who like adding pilots to their models, the example included is the best this reviewer has ever seen. The decal sheet is a little disappointing for although it is comprehensive in its coverage the shade of blue used for the national markings looks to be too light.

At £1.85 the kit is good value and captures the feel of the original. For those who have not seen the actual aircraft a surprise is in store, for even in 1:48 scale it is diminutive when compared with the more

Continued on page 648



Above The three-version Albatross D-III from Revell. Below Another recent Revell issue, the 20-inch long USS Missouri.



# MODELTIONS

PLASTIC KIT SPECIALISTS — ASSOCIATE MEMBER I.P.M.S.

RAREPLANES VACFORMS A/C		ITALAEREI A/C KITS		HELLER A/C KITS		MONOGRAM A/C KITS		ESCI AFV KITS	
P-51H Fuselage	1/72 50p	Lavochkin LA-SFN	1/72 55p	Polikarpov I-153	1/72 55p	Curtiss P6E biplane	1/72 65p	PzKpfw 111 Ausf M	1/72 60p
B F4B-3, C.P.1 Fuselages	1/72 50p	Reggiane RE-2002	1/72 65p	Yak-3	1/72 55p	Curtiss F1C-2 biplane	1/72 65p	Sd. Kfz 251/1 Hanomag	1/72 60p
Bell 206 Jet Ranger	1/72 65p	Henschel HS-126	1/72 80p	ME B109E-3	1/72 55p	Boeing F4B-4 biplane	1/72 65p	PzKpfw II Ausf. F	1/72 60p
Stinson Sentinel	1/72 90p	RF-84F Thunderflash	1/72 99p	ME 262B-1a/U1	1/72 55p	Curtiss P-36A	1/72 65p	PzKpfw VI King Tiger	1/72 60p
SBC-3/4 Helidiver	1/72 £1.10	F-84F Thunderstreak	1/72 99p	FW 190A-B/F-3	1/72 55p	G.58F Bearcat	1/72 65p	PzKpfw IV Ausf. H	1/72 60p
S. Spitfire	1/72 £1.10	Fiat BR 20 Cicogna	1/72 £1.65	P-47N Thunderbolt	1/72 55p	P-51B Mustang	1/72 65p	PzKpfw V Panther	1/72 60p
Rep. P43A Lancer	1/72 £1.10	Caproni CA 313/314	1/72 £1.65	Bloch 152	1/72 55p	D. Al-E Skyraider	1/72 90p	PzKpfw V JAGD Panther	1/72 60p
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						F-6F-3 Hellcat F. Mk. I	1/72 25p	PzKpfw III Ausf. M/N	1/72 65p

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familiar F-4, F-15, etc. Review sample was provided by Jones Bros of 56 Turnham Green Terrace, Chiswick, London W4, who can supply by mail, but don't forget to add enough for postage.

### Revell 3-in-1 kits

IF YOU MISSED the Revell range of 1:72 scale kits of World War 1 and 2 aircraft first time around the opportunity to obtain them presents itself again with three more updates. Unfortunately earlier inaccuracies have not been changed and the inclusion of three sets of decals — however commendable this may be — does not really improve the basic kits.

This comment especially applies to the P-51D which, since it first appeared has become available in much more accurate form than the Revell offering. The review sample received for the P-51D was a complete reject as the fuselage mouldings were deformed to a degree where they became unrecognisable. The starboard half had a fin and rudder which would have been more at home on an La5 and the port side started as a stump just forward of the cockpit and ended with a mis-shaped half rudder that was only ¼ inch tall. It would be unfair to comment on this except to say that from the pieces received it appears that nothing has been done to the original moulding to rectify the incorrect shape of the fuselage which is particularly noticeable around the rear sections and the under-fuselage intake. The seat and instrument panel are good but the plethora of over-scale rivets brings back unpleasant memories of the early 'fifties. Decals for 'Tangerine' of the 357th Fighter Group, 'Texas Terror IV' of the 355th and an aircraft of the 21st Fighter Group are well printed and would be useful on a decent kit of the P-51D.

Fortunately, the mouldings of the F4F-4 Wildcat had not suffered from gremlins as had the P-51 but they are still a little dated and look to be incorrect as far as the overall shape of the fuselage is concerned. Once again rivets are very prominent and a lot of work is needed if the model is to stand any sort of comparison with modern day kits.

Completing the quartet are two from World War 1, the Sopwith Triplane and the Albatros D-111. Of the two the Triplane seems to be the more convincing but the representation of the canvas covering looks more akin to sackcloth in some areas.

Markings and additional parts for the prototype Triplane N-500 are included and the alternatives are for an aircraft from No 1 Squadron RNAS or Raymond Collishaw's Black Maria. The Albatros markings include the inevitable Red Baron, Herman Göring's aircraft and the machine of Werner Voss.

All these kits, with the possible exception of the P-51D, can be turned into reasonably accurate models if you are prepared to improve some parts and spend a lot of time correcting others. But do not condemn them out-of-hand for it is worth remembering that they come well into the 'pocket money' category and every one that is sold could well be contributing indirectly towards improved issues in the future.

# NEWS FOR WARGAMERS

Airfix Magazine Guide 15 **World War 2 Wargaming**, by Bruce Quarrie. Patrick Stephens Ltd, Bar Hill, Cambridge, CB3 8EL. Price £1.40.

THIS IS Bruce Quarrie's second wargaming book in the Airfix Magazine Guide series, and although pitched at a much simpler level than his earlier *Napoleonic Wargaming*, contains some interesting ideas and some fairly basic playing rules which will probably prove popular with those just starting wargaming in this period.

The author begins by describing in simple terms how wargaming works and how rules are constructed, giving a 'green light' to anyone who wishes to expand and develop his own.

To a large extent, the playing rules presented in this book appear to be adaptations of those proposed in Mr Quarrie's other World War 2 book, *Tank Battles in Miniature 2*, but here they are adapted for use with 1:76 scale models and figures, for fairly obvious reasons, since this is an 'Airfix' guide, instead of 1:300 scale. This is probably an advantage since the majority of 'modern' wargamers probably still cut their teeth on 1:76 even if they progress to micro armour later.

The book includes a chapter on constructing models for wargames, which includes tips on painting Airfix polythene figures so that the paint doesn't start flaking off the moment they are handled, and on strengthening plastic kits so that they don't fall apart after repeated manoeuvring.

Following this there is a basic introductory chapter on the major armies of World War 2, their organisation and weapons, including American, British, German, Italian, Japanese and Russian infantry, armoured, artillery, reconnaissance and other units, followed by a list of 'points values' for a variety of tanks, guns and other weapons and vehicles to enable balanced forces to be assembled for a wargame.

Then, in logical sequence, follow chapters on orders, infantry movement, vehicle movement, infantry versus infantry fire, infantry fire versus vehicles, tank and anti-tank fire, artillery fire, smoke, wind, melees, reaction (morale) and initiative. Infantry fire is very simplified and serious wargamers will want to considerably develop this, but the tank and anti-tank section is very well thought out apart from the section relating to fire against hull-down targets, where the penalties have virtually been duplicated making it all but impossible to score a hit. We suggest you deduct one or the other, not both.

As a set of playing rules for a beginner, or a simple set for the jaded wargamer sick of great thick rule books which reduce every move to tedium, this handy little volume can be firmly recommended.

### Trafalgar

IT IS DEBATABLE whether this game should be reviewed under the banner 'News for wargamers', but we take the view that every potential wargamer must start somewhere no matter how humble the beginnings. Besides, it is a good idea to encourage British manufacturers to provide more material catering to our hobby.

*Trafalgar* actually bears little relation to the battle of that name, but it is a good, entertaining game which can teach the rudiments of tactics in the age of sail. It is a game for two or four players, one side commanding two British ships of the line and two frigates against a similar combined squadron of French and Spanish ships. These are moved about a large playing board covered with a triangular grid which directs movement.

The ships are simple plastic models, each with removable masts and sails. The models are small and rather crude but quite effective. They are distinguished by self-adhesive transfers for the gun decks and pennants. Each ship is accompanied by a card showing a cross-section of the gun decks on which are placed little plastic cannons, one port and one starboard for each deck. Hits on enemy ships are determined by dice throw for which special dice are provided. These are blank on three sides and on the other three have one to three stars. These indicate a hit at various ranges. A dice is thrown for every gun deck firing, and each hit means the loss of a mast or the destruction of a gun deck on the enemy's vessel. A ship is destroyed when all masts and gun decks are lost.

Naturally, all of this is primitive stuff to established wargamers. The finer points of sailing ship combat are missing. Ships may not sail directly into the wind (which is variable), but otherwise their speed is dependent solely on the number of masts still standing (frigates do sail faster than ships of the line).

One rule we particularly object to is that ships may turn through 180 degrees on the spot.

All of these shortcomings can be overcome by devising simple additions which the makers could easily have incorporated as optional rules. The point is that the game in its standard form is fast and great fun. Basic tactics such as 'crossing the T' and breaking the enemy's line of battle are effective, though here again a few pointers could have been given by the manufacturers. Perhaps they underestimate the game's potential. The price of *Trafalgar* is high and probably partly the result of the charming art work on the playing board and large outer box. We think that it will be a much-played game though, and this could make it good value even at £4.95. It is available through most toy shops and department stores.



### Island War

SIMULATIONS PUBLICATIONS Inc continue to expand their QuadriGame series of board games with 'Island War', four battles from the Pacific theatre of World War 2 (each of these will also be made available as a separate game in the low priced 'folio' range). I suppose that SPI, having embarked on this project, will continue until all suitable subjects have been exhausted.

Our previous reviews have generally been favourable towards the series, emphasising the playability of the games and their suitability for newcomers to board wargaming, and only lightly touching on the inevitable lack of realism which results from oversimplification. It would be easy to write again along the same lines.

Indeed, we could almost use a stereo-typed copy for the entire series. It is not an unreasonable idea since this is the very essence of the SPI QuadriGames; a basic game system simple enough to cover centuries of warfare with only minor concessions to the arms and tactics of different ages.

True, the system demonstrates the almost immutable principles of strategy and gives players a vague impression of the nature of the forces in conflict and the difficulties or benefits of the terrain they fought over. It can not, in its present form, show the distinctions between infantry, artillery and cavalry or armour, nor their inter-relation on the battlefield.

Since SPI have taken pains to devise such a homogenous series, why could they not produce a single, short list of optional rule suggestions which could be issued with every game? I would like to see, for example, a rule forbidding unsupported infantry assaults against armour or mounted cavalry formations (history records few successful instances).

Or, to demonstrate the principle that where armour or cavalry is useful for achieving breakthroughs and cutting lines of communications, while infantry is needed to hold ground, it could be ruled that an armoured assault (or cavalry charge) against prepared infantry would have a small chance of resulting in the destruction of either force or the repulse of the assault (or withdrawal of the defenders), and a greater chance of the attacking force simply running right over or around the position and into the rear of the enemy line.

A few, simple optional rules of this kind, compatible with the whole series, would add a lot to the games both in terms of realism and enjoyment.

All of these remarks are relevant to Island War and little more need be said. The four battles chosen are Bloody Ridge (September 1942), Saipan (June 1944), Leyte (October 1944) and Okinawa (April 1945). They are all much the same with slight differences to allow for particular aspects of the battles. I must say that I enjoyed Saipan the most because my games (played solo) were fast enough to obviate boredom. Six times so far have the US Marines assaulted the beaches and six times they have been flung back into the sea within the first three turns! They are still trying.

Island War is available through Simulations Publications UK, Crown Passages, Hale Altrincham, Cheshire WA14 6BR, price £6.75.

# BOOKS FOR MODELLERS

### Modelling

Airfix Magazine Guide 16 **Modelling Jet Fighters**, by Bryan Philpott. Patrick Stephens Ltd, Bar Hill, Cambridge, CB3 8EL. Price £1.40.

BRYAN PHILPOTT, whose work will be well known to readers of this magazine, has done it again! This inexpensive volume is a marvellous guide for the benefit of all aircraft modellers who specialise in 1:72 scale jets, and packs a wealth of useful information into its 64 pages.

Basic hints and modelling suggestions include well illustrated descriptions of how and when to displace control surfaces, how to detail cockpit interiors and ejector seats, the necessity for inserting blanking pieces and jet pipes inside the fuselage sections of many kits, thinning down wing sections, making instrument panels, detailing undercarriage components, adding realistic gun ports and a host of other features.

This is followed by a selection of practical modelling examples on which to cut your teeth and broaden your experience, ranging from a Meteor Mk III conversion through the Hunter F1, T7 and T8, BAC Lightning F3, Sea Hawk with folded wings, detailing the Airfix F4 Phantom and converting it into an RF4E among others, to detailing the LTV Corsair 2 and converting it into the two-seat YA-7H.

Throughout, the text is lavishly illustrated with photographs both of models and actual aircraft, together with some of the best drawings we have ever seen in a book of this type, contributed by Martin Holbrook.

Even if you only make the occasional jet fighter model, many of the modelling tips are easily applicable to other types, and at only £1.40 this is a book which should not be missed by any serious aircraft modeller.

**Making & Flying Kites**, by A. Lloyd, C. Mitchell and N. Thomas. John Murray Ltd, 50 Albemarle Street, London W1. Price £2.95.

KITES HAVE fired people's imagination from earliest times to the present day. Fun to build and fly, they have also played an important role in such varied fields as meteorology, air photography and air-sea rescue. Benjamin Franklin used one in his experiments with electricity and Marconi raised the aerial for his first inter-continental radio link up with one, the Wright Brothers also began their investigations into manned flight with a box kite.

Most readers of this magazine will have at some time or another put plastic models on one side for a while in the pursuit of a more outdoor activity. So if the urge takes you in the coming summer months to look for something a little different, why not try a kite?

This slim but readable tome explains the different types of kite and the aerodynamic

theory behind them. It does not get too technical for the layman and after the section on the history of the kite, there are full instructions on building and flying various types, none of which are beyond the capability of any reasonably accomplished modeller. All materials are detailed and simple diagrams leave nothing to doubt as far as assembly is concerned.

At £2.95 this hard-backed 95 page book is a worthwhile investment for the whole family and can open the doorway to many hours of summer-time fun.

### Aviation

**Hurricane II Manual and Spitfire V Manual.** Arms and Armour Press, 2-6 Hampstead High Street, London NW3. Prices £5.95 and £4.95 respectively.

THESE TWO VOLUMES are in the new RAF Museum Series launched by this publisher on May 8. Basically the works comprise the Official Air Publications for the aircraft concerned and these have been reproduced exactly as they were issued to the units and personnel concerned with flying and servicing the Spitfire and Hurricane.

From a modeller's point of view the value of either book depends a great deal on just how seriously the hobby is taken and the scale favoured for modelling. There is no doubt that within the pages of both books the true enthusiast will be able to find everything he wishes to know as far as super detailing is concerned, and this is especially so of the cockpit interiors, not only from the point of view of instrumentation and controls, but the correct rigging of the safety harness; exact details of the seats; gunsights; and other associate equipment.

For the man who is just interested in aeroplanes, whether or not he is a modeller, the books provide fascinating and interesting reading, covering as they do every aspect of the aircraft from its overall dimensions to rigging, fuel capacity, performance, ammunition loads, etc. etc.

The quality of the illustrations is in some cases a little poor, but this is explained by the publishers as resulting from a genuine attempt to reproduce the manuals *exactly* as they were. In any case this does not spoil either publication as they are adequate and perfectly legible. Some may think twice about paying the high cover price asked but those who take the plunge will find that it is money well spent.

**World Combat Aircraft Directory**, edited by Norman Polmar. Macdonald and Jane's, Paulton House, 8 Shepherdess Walk, London N1. Price £6.95.

THIS BOOK provides a ready reference to contemporary air forces' order of battle together with the characteristics of combat aircraft in service throughout the world.



Divided into two sections, the book is easy to understand and is a worthwhile investment as it does save a lot of time in ploughing through a variety of other material to find major facts.

Section one lists each air force with estimates of its total aircraft strength, organisation and other relevant information in tabular form backed by a minimum of text which in the main is confined to brief histories.

The second section lists the characteristics of the main combat aircraft, their main specifications and comparisons of the difference between similar types. Fighters, bombers, attack aircraft, maritime patrol aircraft as well as all the other varieties that form any air forces' inventory are well documented and types used in electronic warfare as well as helicopters are not neglected.

This comprehensive directory also includes basic strength comparisons between potential enemies, information about insignia, aircraft designations and a listing of all aircraft carriers in service with the world's navies.

There are also useful appendices and a glossary of terms within the 373 pages. Many of the photographs are familiar ones but this in no way spoils the overall effect or usefulness of this well-produced reference work which no modeller who likes to know the history of his subject should be without.

**Aeroplanes in Colour.** Ian Allan Ltd, Terminal House, Shepperton, Middx. Price £1.95.

REGULAR READERS of *Aircraft Illustrated* will already have seen all the aircraft depicted in this latest Ian Allan publication, since all the coloured photographs have appeared in that magazine. But as stated in the foreword, this is of little consequence, as the quality of the photographs and the subjects has made the exercise well-worthwhile.

The collection tastefully covers over 60 years of the development of the aeroplane covering subjects as wide apart as Lt Stuart Culley's Sopwith Camel to the F4 Phantom II. In between there is a kaleidoscope of fascinating subjects that enables the reader to while away idle moments during which, if he is a modeller, the urge to reproduce many of the more unusual schemes will become strong.

Of course, as a reference for modellers the book is limited as further research is necessary to obtain an overall picture of the aircraft shown from every point of view. But this does not detract from the book's value which at £1.95 is very good in these days of spiralling prices.

**Supermarine Spitfire Remembered**, by Philip Moyes. Vintage Aviation Publications Ltd, Station Field Industrial Estate, Kidlington, Oxford. Price 90p.

IT IS HARD to believe that there is still room for another book about the Spitfire, but this thin monograph by Philip Moyes published by Wingspan Publications proves otherwise.

Although not intended and by no means a definitive work on what is probably the world's most famous aircraft, the book contains much of interest to the modeller. There are photographs of all variants as well as readable text on production

development and service use. For 90p one would be hard pressed to find a better general reference although much of the text and some of the photographs will already be very familiar to those who have more than just a passing interest in aircraft and the RAF.

This is the first of what is hoped will be a series from Vintage Aviation Publications Ltd who have taken over the production and marketing of Data Plan and Wingspan publications.

## Military

**German Uniforms of World War 2**, by Andrew Mollo. Macdonald and Jane's, Paulton House, Shepherdess Walk, London N1. Price £6.95.

FIRST, THE bad news. For a book of 160 pages, 218 monochrome photos and eight pages of schematic colour, £6.95 is pretty steep. The fault lies, of course, not with the author but with the publishers. Let's leave it that this reviewer is puzzled that a book on this subject, by this author, did not inspire this mass-market publisher with enough confidence to set a high enough print-run to bring the unit price down.

In a book of this size, no study of German uniforms embracing all four armed services, foreign volunteers, police, SA, SS, Party, various administrative and transport services and several Ministries can be more than basic. Andrew Mollo's 'basic', however, is a lot more respectable than most people's 'exhaustive' — he brings years of primary research experience to this task, and packs a really remarkable amount of information into his narrative text, which is broken down into broad periods, such as '1942: Russian Campaign and German Occupation'; '1942-43: Campaigns in Libya and Tunisia'; '1943-45: German Home Front', and so forth. The photographs are clear and well chosen, and in some cases extremely rare. The coverage of the Army is fuller than that of the other services, but this reflects market priorities among modellers and is understandable. This book by itself won't provide enough reference for the serious modeller's shelf, but it is a first-class skeleton around which to build more specialist collections of titles; and on some subjects it will provide all the modeller is likely to need, such as the more obscure political organisations and services.

The colour includes four pages of schematic presentations of uniforms, of services, departments, and Party organisations; there are 48 in all, very clearly and attractively done. There is a big two-page rank insignia chart embracing the four armed services, Eastern auxiliaries, the Russian Army of Liberation, and the Home Guard — a most useful feature, this, and one which will be consulted constantly as the handiest presentation of this data generally available. There is a consolidated Waffenfarbe chart embracing everything from the Army to the TENO and Organisation Todt; and finally there are four variations on the theme of personal combat harness, clearly laid out and of great value to modellers — particularly the fourth, which features the rarely-illustrated pouches for the M1944 assault rifle magazines.

## Kirby Cadet

AS A GLIDING instructor attached to an ATC gliding school, I was delighted to see Tim Perry's article on the Cadet Mk 3 glider. However, since the drawings were made, a new colour scheme has been introduced and will be applied to all Mk 3s and Sedburghs when they return to the MU for refurbish.

It is the very attractive training scheme as used on Bulldogs, comprising pale grey wings with red tips, red fuselage with white upper decking, red tailplane and grey elevators and rudder. I consider the scheme useful for those modellers who fail to achieve a reasonable silver finish, besides making the glider look more attractive. The only one I have seen (and flown) is XE793 of 625 Glider School at South Cerney, Glos. It may be imagination, but this glider seems heavier on the controls, and it is possible that the polyurethane causes this.

Looking at the drawing, the top of the rudder appears slightly too short, compared to the GA drawing of the glider. Also, a fair number of Mk 3s have an upward curve to the lower edge of the rudder. This appears on the photographs of the model.

I for one am looking forward to the Sedburgh article, but surely is it not high time kit manufacturers took an interest in gliders? Everywhere I go there are laments from glider pilots, young and old. At present only Italaerei make injection-moulded gliders, and they are beautiful kits.

M. J. Barnes, RAF Fairford.

## Wargame queries

NO 1 WARGAMES Command has created a new department to assist 20th Century wargamers. Called the 20th Century Research Station, the section will try to help wargamers in their research into the

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battles, armies, equipment, etc. of the 20th Century, by answering telephone queries on Tuesday evenings between 7.30 and 9 pm (tel 01-570 6336) or written queries, which should be sent with an SAE to: 22 Old Cote Drive, Heston, Hounslow, Middx TW5 0RW.

## ATC address

WITH REFERENCE to the excellent article on the Air Training Corps in the May issue, I would just like to point out that the address quoted in the last paragraph is now incorrect. The new address is: HQ Air Cadets,

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THE BRITISH Aviation Research Group have informed us that the prices of their two aircraft monographs have unfortunately had to be increased, and are now £1.60 for the *Skyraider* (£1.55 Europe. £3 Commonwealth, airmail); and £1.25 for the *Wyvern* (£1.20 Europe, £2.40 Commonwealth), postage inclusive. Copies of both monographs can now be obtained from Mr D. J. Allen, 32 Nash Close, Cove, Farnborough, Hants GU14 0HL.

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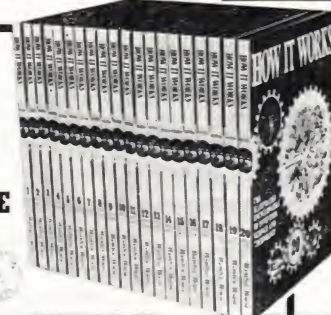
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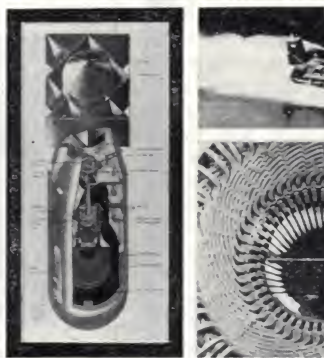
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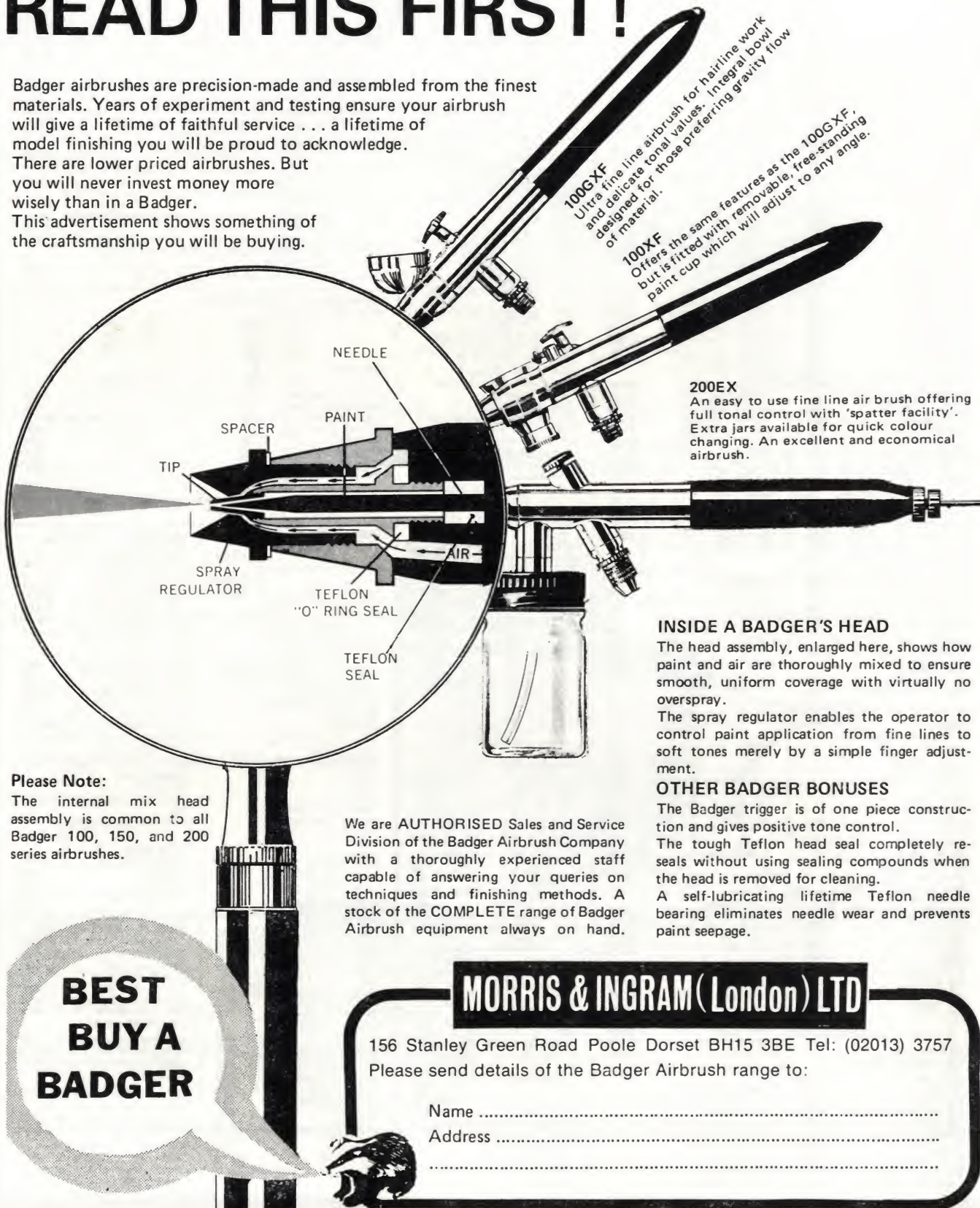
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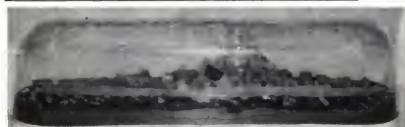
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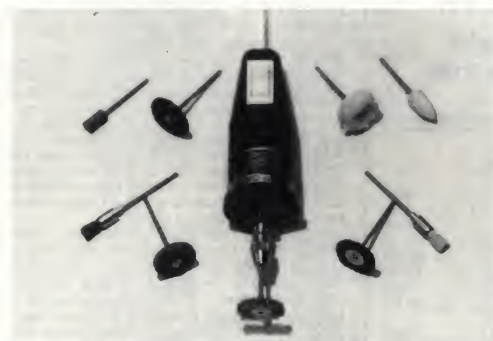
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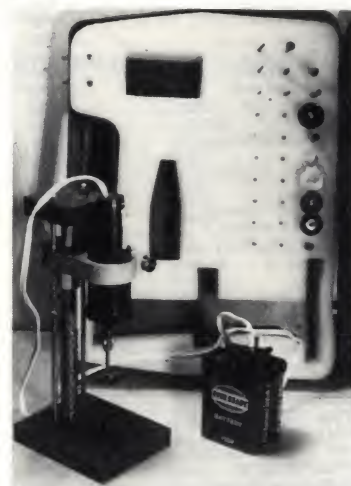
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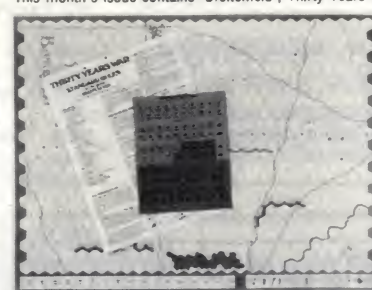


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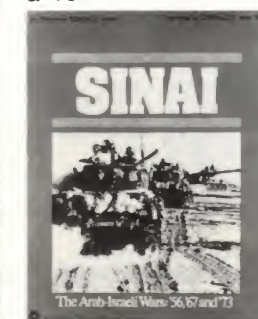
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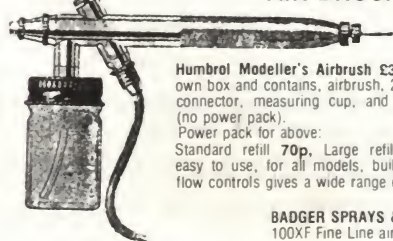
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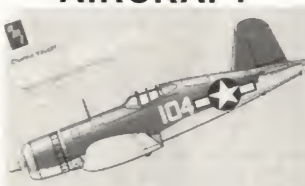
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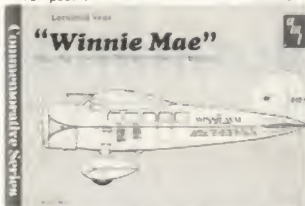
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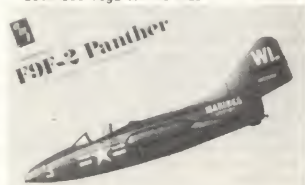
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